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Medical Care Among the North Carolina Moravians*

By Dorothy Long, *Reference Librarian*

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THE quality of medical care in the Moravian settlements of piedmont North Carolina during the eighteenth and early nineteenth centuries ranged from "the English woman who can cure cancer" to the doctor trained in Berlin. In some respects, medical care there was doubtless superior to that of most other communities of the time, but the one really unique thing about it is the extent of the remaining records.

The Moravians, a religious group who had earlier settled in the region around Bethlehem and Lititz, in Pennsylvania, owned in North Carolina a large tract of land known as Wachovia on which they established three towns—Bethabara or "the old town," Bethania, and Salem, and scattered smaller communities. Local traditions recall that the Indians knew it as a place of "good people and much bread," which is probably an excellent characterization, since these settlers were members of a devout but not fanatical religious group, believing in an equality which led them to address each other as "Brother" and "Sister," yet not failing to recognize and make use of any unusual talents among the members of their church. They were also industrious, efficient, practical—and well organized. The amount of control by church officials over the activities of the residents varied at different times and in different places, though it was never very marked in the case of the professions, but almost every action of importance was discussed at some meeting of one of the boards and councils of the church and included in the minutes, or was recorded either in the yearly memorabilia of one of the congregations or in the diary usually kept by the pastor or the schoolmaster. Most of these records are now in the Salem, North Carolina archives, which also contain letters, both personal and official, memoirs of deceased members, and other miscellaneous papers. The early documents are usually in German, and many of them have not been published, but most of the significant items, translated and edited by Miss Adelaide Fries and Dr. Douglas Rights, form the collection known as *Records of the Moravians in North Carolina*. In building up this picture of medical care from 1753 until

* Murray Gottlieb Prize Essay in the History of American Medicine.

about 1825 some other contemporary sources have been used, but most of the material was found in the Moravian records.

In November, 1753, the first group of Moravian colonists, all of them single men, arrived in Wachovia and made their home in an abandoned log cabin. They were not, of course, the first settlers in the area, though most of the comparatively few colonists who had preceded them lived near the rivers to the north and west of the Moravian lands. The thirteen men who arrived on this bleak late autumn day had been carefully chosen to represent the knowledge and skills which would be of most value, and they included not only a doctor, Hans Martin Kalberlahn, "born in Norway, aged 31, their surgeon," but also Friedrich Jacob Pfeil, "born in Germany, aged 28, shoemaker, sick-nurse, and moreover willing and skillful in many things."[1] Dr. Kalberlahn's generous service to any of the neighbors who needed his help began a tradition which was followed by his successors and which won for the Moravians the friendship and respect of the other inhabitants.

Dr. Kalberlahn was a native of Drontheim, Norway, where he had received his preliminary education in a Lutheran school and had then served an apprenticeship under an older physician. He had also spent a year travelling through Europe, visiting hospitals and other physicians, paying the expenses of his travel by medical and surgical work. Becoming friendly with the Moravians in Copenhagen, he had been accepted into their church and had emigrated to their settlements in Pennsylvania. The small group of which he was a member came to North Carolina on November 17, and ten days later their diarist recorded that, "Dr. Kalberlahn bled Mr. Altem's friend and gave him some medicine, for which he promised to pay two bushels of corn."[2] On December 22, "An Irishman arrived, seeking counsel of Dr. Kalberlahn. He begged to be allowed to stay several days in his care, and we could not refuse, as the poor man was in great pain, although it is not convenient to us with our small resources."[3] During the following four years there are accounts of patients coming for as much as a hundred miles for treatment, and staying for days or weeks of care, or of the doctor going on journeys of equal length to treat them.

In 1758 Dr. Kalberlahn returned to Bethlehem for a visit, having first given two of the other men a little medical instruction in case something should happen during his absence. He married while he was in Pennsylvania, and returned with his bride in May, 1759. Shortly thereafter an epidemic of typhus fever struck the settlement, and in July Dr. Kalberlahn himself died of the disease. Manuscript records, including his wife's diary, indicate that during his

[1] Fries, Adelaide and Rights, Douglas L., eds. Records of the Moravians in North Carolina. Raleigh, 1922–1954, v. 1, p. 73.

[2] Ibid., p. 82.

[3] Ibid., p. 85.

scant six years of practice in North Carolina the first Moravian doctor had acquired a well-deserved reputation for skill and devotion in the practice of his profession.

Although descriptions of diseases and the methods of treatment used by Dr. Kalberlahn and his successors were usually written not by the physicians themselves but by the congregation diarist, they do furnish much information about medical problems and attempts at their solution. A constant difficulty was that of securing a supply of drugs. As early as 1756 a medicinal garden was laid out for Dr. Kalberlahn, and the following year the *Records* reported that he arranged a laboratory. Clewell's *History of Wachovia in North Carolina* contains a reproduction of the plan of the garden and a list of the plants grown, including yarrow, camomile, hyssop, fennel, rue, hoarhound, plantain, and white poppy.[4] Several botanical surveys were made, the first apparently being in 1761, when the Bethabara diary listed native herbs, with notes concerning their medical value, such as "Squasweed for rheumatism, milkweed for pleurisy, and Indian physic for preventing fevers."[5] In 1762, "A botanist from Philadelphia stopped on his journey and inspected our medicinal garden and certain other places. He said the slope below our God's Acre was a great treasure house."[6] In 1764 an even more careful survey was made, probably by Christian Gottleib Reuter, the Moravian surveyor. An unsigned manuscript bearing the title *Wachau or Dobb's Parish* contains a list of both native and imported plants in the Wachovia area, and mentions some medical uses, such as "Sassafras, which is much used in medicine to purify the blood," and "nightshade, which is a proved remedy for old, open, or scorbutic sores, or salt rheum."[7]

Whether the medicines were made from native herbs or bought from elsewhere, the doctors must have kept a supply of drugs ample enough to become widely known, for they had frequent requests from outside their own settlements, often from long distances. For example, in 1761 a man came all the way from the Savannah River to get medicine.[8] By 1769 the Moravians had established an apothecary shop, which they usually mentioned as an inducement when they were trying to get a new doctor.

The practice of bleeding patients was as prevalent in Salem as in any other place in that period, and there are many references to it in the *Records*. Evidently it was not always done by the doctor, since a diarist occasionally mentioned having done it himself. Blood might be drawn for a variety of reasons—in 1775, "Sister Kastner had such a hemorrhage from the nose that it became

[4] Clewell, J. H. History of Wachovia in North Carolina. New York, 1902, p. 21–22.

[5] Fries, A. and Rights, D. L., eds. Records of the Moravians. Raleigh, 1922. v. 1., p. 236–237.

[6] Ibid., v. 1, p. 250.

[7] Ibid., v. 2, p. 557–587.

[8] Ibid., v. 1, p. 236.

necessary to bleed her;"[9] and later a boy who had dislocated a shoulder and injured a hand "was bled and received other necessary attention." Sometimes the indications for bleeding seem a bit more rational, and it may even have been a helpful therapeutic measure, as when in 1783, "Br. Heinzmann has been ill with attacks resembling apoplexy, and has fallen three times. The drawing of a small amount of blood has given relief for the time being. The whey cure and other remedies have been tried, but without results."[10] At another time, when a man had been bitten on the foot, probably by a black widow spider, "his limb became burning hot, and there was oppression on his chest, and it became necessary to open a vein."[11]

Methods used for the arrest of bleeding sometimes showed a combination of reason and superstition. In the case of Mrs. Kastner, mentioned above, when her hemorrhage recurred, her family sent for Dr. Bonn, and "we also sent to Bethania for the stone which is said to be good for stopping the bleeding, and it helped."[12] Perhaps few people would believe this today, but we still have modern counterparts of Molly Schmidt, "the English woman who can cure cancer," and they still find followers, so it is hardly surprising that when in 1788 she stopped in the village of Bethabara she was consulted "by various people about all sorts of things." Smallpox, in the eighteenth century, was quite as terrifying as cancer, so when Salem was suffering an outbreak of that disease in 1779, most people very sensibly avoided the town, but,

> if people came or passed through, it was customary for them to have a leaf of tobacco which they smelled as a preventive, some stuck tobacco leaves in their nostrils, one even saw passersby who had smeared tar on the forehead, under the nostrils, and elsewhere.[13]

Mental illness seems to have been rather infrequent among the Moravians, but the accounts of a few cases show a surprisingly modern attitude. For example, in 1794:

> The Salem Board considered the case of our old blind Br. Schneff, who has no employment and who becomes more and more hypochondriacal. We wished we could think of something to keep him busy and give him exercise. Various suggestions were made, and it seemed possible that he might be able to saw wood.[14]

This was to be paid employment, and Dr. Vierling was appointed to discuss it with the old man, who accepted the suggestion, and whose health reportedly improved. A more seriously ill person was the Widow Strehle, who caused a

[9] Ibid., v. 2, p. 905.
[10] Ibid., v. 4, p. 1919.
[11] Ibid., v. 3, p. 1303.
[12] Ibid., v. 2, p. 905.
[13] Ibid., v. 3, p. 1283.
[14] Ibid., v. 6, p. 2504.

great deal of trouble at various times, and for whom a guardian was finally appointed. In 1824 the Salem officials debated what should be done, and decided:

> No one but ourselves will be found willing to take charge of the Widow Strehle, and as there is no reformatory or hospital to be found in this state, there is nothing to be done but to confine this pitiful person to her home, to the great distress of her guardians. . . . Since she must be constantly confined, we must build a high fence around the yard for her, so that she can have fresh air.[15]

If mental illness was infrequent, epidemics of communicable diseases certainly were not. Fevers of various kinds were noted with almost monotonous regularity, measles and smallpox appeared often, and there were occasional epidemics of less common illnesses. One of these, called at the time *Angina Maligna*, began in Salem in January 1792, and spread to the nearby towns, lasting until October. Most of the cases described shared the features of sudden onset, severe pain in the throat, high fever, and delirium, and fatal cases were usually of only three or four days' duration. The first victim was a small boy, the next a single sister who had helped care for the child, and who in addition to the other symptoms had a petechial fever.[16] The description suggests a malignant form of diphtheria, or perhaps scarlet fever or a streptococcal infection. There were a number of fatalities, especially among the younger women who helped nurse the sick and who seem not to have realized the danger of contagion. This same unawareness was true in regard to tuberculosis, which though not an epidemic disease, caused many deaths, especially during the 1820's. These included William Craig, who taught in the school for little boys until shortly before he died "after a long illness with consumption."[17]

Smallpox and measles were of course unmistakably contagious, and there is a note that in an epidemic of measles in 1825 the older people who had it were keeping themselves apart, which suggests a form of voluntary quarantine. In the case of smallpox, the Moravians had considered inoculation in an epidemic of 1779, but had decided against it, partly because of threats received from a neighboring village saying that Salem would be burned if this plan were carried out.[18] In 1781, however, after some hesitation Dr. Bonn inoculated a few of the residents of both Salem and Bethania; in 1786, Dr. Lewis, who had replaced Bonn, inoculated a number of people in all three of the Moravian towns. Since the patients received good care, the practice was fairly successful, and there were no serious epidemics for several years. In 1801, Dr. Calvin Jones of Raleigh, an early advocate of vaccination, wrote a newspaper article which

[15] Ibid., v. 7, p. 3695.
[16] Ibid., v. 5, p. 2356.
[17] Ibid., v. 8, p. 3632.
[18] Ibid., v. 3, p. 1286.

interested the Moravians,[19] and on April 21 of that year the Salem minutes reported:

> Smallpox has not been among us for fifteen years, and it is time that something should be done for our young people who have grown up since then. A new kind of smallpox has recently been discovered in Europe, in which the worst features of the disease are almost entirely absent. In the last newspaper Dr. Calvin Jones, of this state, announces that he hopes to receive this kind of smallpox, which is called cowpox, and offers to inoculate with it. It will be well to inform our members of his description of this new illness.[20]

Some time later a meeting of the parents was held, and the matter was fully discussed, apparently quite convincingly, for the memorabilia of the next year, 1802, stated that about eighty people had been vaccinated with very satisfactory results, and added:

> If this kind of pox proves to be a sure and lasting preventive against the common smallpox, as experience seems more and more to attest, we cannot thank our Lord enough that so large a number of our children and youth have had the disease so easily.[21]

Fever was an even more common occurrence than smallpox—in fact, there were few years indeed when it was not reported. Usually the disease was called simply *fever*, though sometimes intermittent fever was specified, in some cases the symptoms which are described suggest typhoid, and one epidemic has been identified as typhus. Few details of the treatment are given, but the patients seem to have received excellent nursing care. In 1776, a committee called to consider the autumn fever decided that in place of the ordinary brandy or beer some should be made in which certain valuable bitter herbs should be distilled. The committee hoped that this proposal might have good results.[22] There was also much discussion of the causes of fever, especially after Salem, which had had relatively less of the disease because of its higher location, had very severe outbreaks for three successive years. A committee appointed to investigate the surroundings of the town reported that its members felt that standing water, swamps, and mire were more injurious to health than running water, and that the Wach, a nearby stream, should be cleared and straightened.[23]

The Moravians were also concerned with the etiology of other diseases, and noticed that one illness was connected with drinking milk from sick cattle. This was first suggested in 1776, when the cattle were thought to have eaten a poisonous herb. A few years later Frederic Marshall, one of the prominent citizens of Salem, wrote a friend in Europe:

> In the bottoms, especially in a dry season, many-colored water stands in the puddles and swamps. The cattle drink this and then in fall their intestines apparently dry up, and

[19] Raleigh *Register*, April 14, 1801.
[20] Fries, A., and Rights, D. L., eds. Records of the Moravians, v. 6, p. 2680.
[21] Ibid, v. 6, p. 2691.
[22] Ibid., v. 1, p. 336.
[23] Ibid., v. 7, p. 3408.

the fattest cattle seem to die first. Persons drinking milk from these infected cows become painfully ill, the sickness hangs on for years and often results in death. This disease is commonly known as distemper. It has been observed that where the bottoms are cleared, so that the stagnant water is dried up by the sun, the sickness ceases.[24]

Their interest in preventive medicine may have been unusual, but at the same time they shared in the usual and easily recognizable causes of sickness. Accidents, snake bites, and spider bites were frequent occurrences, and even the careful Moravians were kicked by horses, fell off roofs, drowned in wells, and were injured by falling trees and by fire. Illness, sometimes even death, resulting from the bite of a spider is mentioned surprisingly often. The spiders, described as black and red, seem to have been the black widow spider. A typical case was recorded in 1763, when a boy, bitten in the leg by a poisonous spider, "swelled quickly and to such an extent that he could not see out of his eyes, and suffered terribly, and would certainly have died had not the snake-root, called Robert's-Planting, been used in time."[25] There were also rattlesnakes in the area, and when in 1787 Martin Schneider, of Friedland, was bitten in the hand, a description of the treatment was given:

He moistened a little cooking salt with water, and held the wounded hand in it, which relieved the worst pain, and the hand did not swell much. Friedland members killed the rather large snake, and laid some bits of its fat on the wound, bandaged the hand tightly above the bite, and give him a drink made of bitter herbs. All this prevented the dreaded ill effects.[26]

Deaths of women in childbirth or from "confinement fever" are occasionally noted, and it seems that doctors were called only in cases of prolonged or difficult labor, a midwife being in charge in most deliveries. This was, of course, the customary procedure in the era, but the Moravian women had at least the advantage of having midwives who had received a little training. In 1772, for example, "Sister Bonn (the doctor's wife) has again been offered and has undertaken the office (midwife) for which she was destined when she married."[27] A later note adds that if she were successful in this her husband should also teach her to do other minor surgical work among the sisters. Other midwives were sometimes mentioned without any indication of special training, but in 1795, in Salem, a conference of the married people,

noted that the position of midwife ought again to be filled in our town. It was thought best that in the presence of the head of the married sisters several of the sisters should receive instruction from Br. Vierling (he was at that time the community doctor), and from these one should be chosen as midwife. Selected for instruction were the Srs. Meinung, Wohlfart, and Holland. . . . Br. Vierling says he is willing to give instruction in midwifery free of charge.

[24] Ibid., v. 4, p. 1917–1918.
[25] Ibid., v. 1, p. 276.
[26] Ibid., v. 5, p. 2173.
[27] Ibid., v. 2, p. 680.

Sr. Yarrell has been added to the number of those to be taught, and the class shall begin as soon as possible."[28]

One of the women in this group, Jacobina Holland, died in 1816, at which time it was said that she had been a faithful and successful midwife since the year 1795.[29]

The Moravian congregations had nurses as well as midwives. Jacob Pfeil, who came with the first group of settlers, was a sick-nurse—the word *sick* is almost always prefixed—and the provisions for nursing care gradually grew more complete. In 1756, when the earliest arrivals had had time to construct a few buildings, and had been joined by other colonists, including married couples and children, a sick room was arranged in the Brothers' House, and some years later the women made an arrangement by which they had a general sick-nurse, and six others who would visit the sick for a week in turn. "These sisters," according to the *Records*, "will have a conference, at which Dr. Bonn will be present to give them instruction."[30] It is doubtful that those who served as nurses had very much formal instruction, but they had at least a little elementary training and there were occasional conferences, as when the election of a chief nurse gave an opportunity "to have a love-feast for all the brethren who care for the sick in the Brothers' House and discuss how their duties can be performed with all faithfulness."[31] In comparison with modern standards, their nursing service was poor, but they must have been far in advance of most communities of that period in having people appointed to the responsibility of caring for the sick and wounded, and in giving them at least some elementary instruction by the community physician. Children were nursed by their parents, but there were nurses whose duty it was to care for special groups in the adult population, the married or the single men or women. In addition to nursing their own people, they often cared for strangers, especially patients who had come from a distance to the Moravian doctors, and during the Revolution, for the wounded or ill soldiers who were left in their care. Several instances of this are given. In 1775, a Mr. Jourdin who had come for treatment by Dr. Bonn, died, and the Salem diary says, "For several weeks he had had an internal swelling, which broke, causing mortification, which gave him much pain and was most unpleasant for those of us who nursed him day and night."[32] In 1780, "Captain Paschke left a very sick soldier here to be nursed, but it was necessary to move him from the tavern to the adjoining smoke house, as the stench was intolerable."[33] Dr. Bonn gave much nursing care himself, as did most doctors

[28] Ibid., v. 2, p. 2536–2537.
[29] Ibid., v. 7, p. 3288.
[30] Ibid., v. 2, p. 723.
[31] Ibid., v. 5, p. 2189.
[32] Ibid., v. 2, p. 869.
[33] Ibid., v. 4, p. 1557.

in those days, but during the Revolution, when sick and wounded soldiers came often to Salem and the other Moravian towns, he had to ask for frequent help.

There was also an attempt to provide some nursing supplies which could be used wherever necessary, as in 1793, when a group decided that the married people needed "a reclining chair, like the one in the Brothers' House, for the use of the sick, and some other things also, which can be used in town in case of need."[34] The chairs had evidently been suggested by someone who had seen them in Pennsylvania, for a little later it was reported that the congregation had received from Bethlehem a warming pan for the use of the sick, and a design for the arm chair. Special funds were established for the support of sick rooms in the houses occupied by groups of single men and women, and when the boarding school for girls, now Salem College, was begun, it had a sick room and a nurse.

Like the Quakers, the Moravians were opposed to war on religious grounds, and consequently were excused from military duty during the Revolution, usually on condition that they pay triple taxes. This exemption often made them objects of suspicion to their neighbors or to visiting troops, and one of the important factors in dispelling this distrust was their generous sharing of their medical and nursing services. Particularly during the years 1780 and 1781, when many skirmishes and some major battles were fought in the vicinity, wounded soldiers were frequent visitors, and Dr. Bonn and his apprentice, Joseph Dixon, were often called upon to help them. In June, 1780, some wounded men coming to Salem on foot, "had neither money nor food, so Dr. Bonn bandaged them and gave them a half loaf of bread, and they left again."[35] Usually, however, the task was not so easily and quickly completed. At one time, for example, General Greene sent three officers and twenty wounded men to Salem to recuperate, and they were expected to stay for two months; soon afterwards, five wounded men were left by another officer. Still later in the same year, "A surgeon's mate arrived, bringing orders that a house with four rooms should be made ready for the coming of the Continental hospital. The two-story house was cleared for this purpose. . . . The sick and wounded were very thankful for this lodging."[36] Army hospitals in those days were extremely temporary affairs, and this one soon moved on, though the more seriously wounded were left in the care of Dr. Bonn. In a special offering of praise and thanksgiving for 1781, the Moravians said:

> The good care taken of them, and the sympathy shown, and the successful, even remarkable service given by Br. Bonn, together with the good treatment given the troops quartered in Salem, finally through God's leading gave us a good reputation with the commanding officers of the Continental Army, which counteracted the prejudice against us.[37]

[34] Ibid., v. 6, p. 2476.
[35] Ibid., v. 4, p. 1544.
[36] Ibid., v. 4, p. 1672.
[37] Ibid., v. 4, p. 1884.

That the wounded men themselves were also appreciative is shown by another item from the Salem diary, which said, "they also saw that the sorely wounded who were left here received all possible care, and through the skill of our now departed Br. Jacob Bonn were restored to health. Several men from Virginia have written in appreciation of his ability and faithfulness."[38] This is one of a number of tributes to Dr. Bonn, who had served as a physician in the Moravian settlements for a number of years before the Revolution, coming for the first time in 1758 from Bethlehem, Pennsylvania, to act as town physician during the absence of Dr. Kalberlahn. There was still trouble between the Indians and the white settlers in western North Carolina at that time, and in 1759 one of Dr. Bonn's patients was a survivor of an Indian attack on Fort Dobbs, a man who had been "pierced through and through with an arrow" a day before arriving in Bethabara, where Dr. Bonn removed the arrow. In 1760 Bonn went back to Pennsylvania, his place being taken by August Schubert, but he returned in 1766 as "doctor and surgeon," moving to Salem in 1772 and remaining there until his death in 1781. Bonn was a justice of the peace and was active in civic affairs. He was also apparently a very competent doctor but not a good business man, for in 1773 the congregation council worried about his going into debt, and mentioned that his business was suffering through the lack of a supply of drugs. The council decided to pay his expenses for going to court or carrying on other town business, but added that "whoever can give him good advice as to his affairs and especially how he can bring his apothecary shop into good condition, shall give him that assistance."[39] In addition to his service during the Revolution, described above, Dr. Bonn coped with the usual accidents, illnesses, and epidemics which were the lot of the colonial doctor, managed the local apothecary shop, and trained an assistant, Joseph Dixon. In October, 1781, at the age of 48, he "had a stroke and died." His memoir says that, "His successful practice of medicine and his cheerful and disinterested service won the respect of everyone."[40]

Following Dr. Bonn's death, the Moravians attempted to get a doctor from Pennsylvania to fill his place, but found this impossible, so they applied to Europe. In the meantime, the community leaders decided that Joseph Dixon could attend to most of the surgical cases, though he should mention it if a case seemed dangerous, and he should not give medicine without asking the advice of one of the older men. It took more than two years to find a successor to Dr. Bonn, but in June of 1784, Dr. John Lewis, of London, arrived in Salem as community doctor. He remained for about four years, but there were many complaints about his conduct, especially about his drinking too much, and about overcharging for medicine, and when advice and remonstration by vari-

[38] Ibid., v. 4, p. 1658.
[39] Ibid., v. 2, p. 770.
[40] Ibid., v. 2, p. 1703.

ous officials failed to bring about an improvement, he was finally asked to leave, which he did in September of 1788. His departure left the community leaders with the task of finding another doctor. They wanted one, they wrote:

> who should be both physician and surgeon, and should either understand the English language or be willing to learn it. He is not paid by the congregation, but carries on the business on his own account, but if he proves worthy he can expect much practice. He will find a fairly well equipped apothecary shop here.[41]

Again there was a long wait for a doctor, but in February, 1790 came Dr. Samuel Benjamin Vierling, who had been born in Silesia and had studied medicine in Berlin, and who was one of the most eminent of the Moravian doctors, attaining considerable local fame as a surgeon, despite a somewhat inauspicious beginning. Dr. Vierling arrived without any surgical instruments, expecting to find a supply in Salem, but there were very few which could be used, so a wagon was sent to Pennsylvania for the things he had left behind. He remained in Salem for twenty-seven years, until his death in 1817, and a number of his operations are mentioned in the *Records*. One of his first patients was Sr. Justine Graff, who came to him for the removal of a cancerous sore. Her memoir says that she stood the intense pain with great fortitude, that the operation was entirely successful, and that she lived for many more years.[42]

Within a few years patients were coming to Dr. Vierling from long distances, and he had so much trouble finding places to keep them that he wanted to start a small hospital. In 1796 he asked for a house where he could place patients until they were well enough to send home, but the Salem Board suggested only that he put them "here and there in the neighborhood or the town"[43] and when he tried again in 1805, he was still unable to make any permanent arrangements. Patients often did stay for long periods, however, sometimes in his own home. One patient died there after two months of treatment, having been brought for the amputation of a gangrenous leg. Another patient who stayed for two months in 1805 was George Kinzer, from Wythe County, Virginia. "He had caries of the jawbone, which had gone so far that a number of doctors had given him up, but he was cured by our Doctor Vierling,"[44] the diarist reported with justifiable pride. In the month of February, 1809, the doctor had two patients from a distance. One of them, a sixty year old schoolmaster, according to the *Records*

> was brought fifty miles from his home in Randolph County that he might undergo an operation for the removal of a growth in his left side. Br. Vierling cut it out yesterday, and it

[41] Ibid., v. 5, p. 2244.
[42] Ibid., v. 6, p. 2473.
[43] Ibid., v. 6, p. 2572.
[44] Ibid., v. 6, p. 2807.

weighed two and one half pounds. The sick man was very thankful that the operation went so well. The doctor in his neighborhood had given him no hope.[45]

The other patient was a Mrs. Hart, who had a cancerous sore removed from her tongue. Other operations mentioned included the removal of an eye from a negro man, trepanning the skulls of two patients, and the removal of the breast of a negress.

Vierling's practice was not entirely surgical, of course, though he seems to have been most interested in surgery. He began vaccination in Salem, giving his services without charge, the congregation having paid for the vaccine. He was concerned with the diet of his patients, at one time regretting the use of so much salt pork, and the lack of fresh meat for the sick, and once taking a cow in payment for a debt so that he could have more milk for them. It was also Dr. Vierling who was the community doctor during the epidemic of "throat disease" in 1792, during which he appealed for help from Dr. Coxe, of Rockingham Springs, some forty miles from Salem. Dr. Coxe had practiced "in various parts of Europe and America, and particularly in the West Indies," but even his wide experience was of little avail, though he went with Dr. Vierling to the homes of his patients, "and with the help of God, and by giving more fresh air and less strong medicine, the sickness seemed to yield. . . ."[46] And in 1792 who could have done much more for either diphtheria or scarlet fever?

There were other occasions when Dr. Vierling called in neighboring physicians for consultation, and patients sometimes went from Salem to some doctor whose reputation in a particular field was outstanding. In 1814, for example, the Moravian Br. Kramsch went to Raleigh to Dr. Calvin Jones, who was well known for his eye surgery. In 1817, he went again, returning sadly disappointed in the result of an operation for cataract. A letter from Dr. John Beckwith, of Salisbury, to Dr. Jones shows that Beckwith had also been consulted, as he wrote that he found Mr. Kramsch's case very interesting, and thought that something might still be done.[47] In 1823, in the Salem diary we read:

Br. Kramsch went to Salisbury on the 19th of last month at the invitation of Dr. Beckwith, a well-known eye doctor there. He returned today after a successful operation on the eye on which no previous operation had been performed, and had the joy of again being able to see his family and friends.[48]

Other doctors visited in Salem, too, and an occasional news item reminds us that this small, isolated Southern town had lines of communication all over the world. In 1808,

[45] Ibid., v. 7, p. 3071.
[46] Ibid., v. 5, p. 2358.
[47] Manuscript letter, December 8, 1819.
[48] Fries, A., and Rights, D. L., eds. Records of the Moravians, v. 8, p. 3628.

Among the visitors attending the preaching service was Mr. Norcum, a young doctor from Edenton (N. C.) . . . who had studied medicine with Thomas Horsefield in Philadelphia. He told us that two years ago he had visited Dr. Horsefield at Batavia in the East Indies, and at that time he was well and universally loved and prized because of his knowledge and experience and well-ordered life.[49]

Dr. Vierling seems to have known many of the other North Carolina doctors and to have been on friendly terms with them, though he felt obliged to refuse the invitation to the first meeting of the North Carolina Medical Society in 1799 on the plea that he could not leave his patients for so long a time.[50] The Moravian settlements were growing rapidly about 1800, and he must have been a very busy man, but it is unfortunate that he did not find time to publish reports of any of his cases, or even to keep detailed records, as he seems to have been an unusually competent surgeon. It was doubtless with real regret that the Salem diarist wrote on November 15, 1817, "The married brother Samuel Benjamin Vierling ended his journey through time. For many years he had served the congregation faithfully as physician and surgeon."[51]

At the time of Dr. Vierling's death there was another doctor, Schuman, who came first to Bethania and later moved to Salem. He was a somewhat controversial and eccentric character, and the community wanted a second doctor, particularly a surgeon who could replace Vierling, so in 1818 a petition was presented to the Salem Board by twenty-four residents of the town:

It set forth their wish that the boards of the congregation should take steps to secure an additional man for the town, one who is also a surgeon and apothecary. They explained that in so important a matter as health it would be better and more satisfactory to have more than one doctor available. . . . In regard to the language and also the habit of treatment it would be better to have an English doctor than one who has studied only in Germany.[52]

Perhaps the phrase "in so important a matter as health" suggests the reason why the Moravians had better than average medical care and almost a modern health department. They had organized a fire department, too, and had devoted time and thought to their water supply. Nurses, and midwives, and competent doctors were important to them, and the control of disease was worth the effort of draining swamps or the risk of trying out a new procedure like vaccination. They were fortunate in the quality of some of their physicians, especially Kalberlahn, Bonn, and Vierling, of whose skill they were duly appreciative, but the development of such health services in a pioneer community depended upon the intelligent cooperation of a majority of the people concerned. Our present day knowledge of these services is made possible by

[49] Ibid., v. 6, p. 2934.
[50] Ibid., v. 6, p. 2631.
[51] Ibid., v. 7, p. 3331.
[52] Ibid., v. 7, p. 3372.

another Moravian characteristic, the scholarly habit of making and preserving accurate contemporary records.

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4. Raleigh *Register*, April 14, 1801.

Library Research and New Drug Development and Promotion*

By Paul de Haen, *Vice President*

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THE original title of this paper was to have been Development and Promotion of New Drugs. This is a subject large enough to be discussed at a symposium for two or three days. Upon further thought, I decided to vary the title slightly to "Library Research and New Drug Development and Promotion."

I am not an expert on any of these subjects, but over a period of years I have made my own observations and I can talk perhaps more freely on the subject because I do not have to defend a position or follow any specific orthodoxy. I have also learned to appreciate the interdependence of the library, the research department, and selling and advertising.

There are some to whom a library is just a dead letter office with a lot of books, magazines, and records neatly stacked on the racks. I for one do not think so. To me a library is a living thing. Some of its life may be temporarily asleep, but the alert librarian can activate it at any instance. Seven years ago I made a statement in a book I wrote on product development: "The library should be regarded not merely as a recording instrument, but as a creative participant in research and product development." I still hold this opinion today, and it applies to both commercial and to medical libraries.

The development and sale of new products can be inspiring and highly remunerative, but it can also be backbreaking labor and very costly. Why is it that industry is so keen on developing new products? Are those we have today so unsatisfactory, or is the word "new" a magic one and does it really mean progress in every respect? Recently one firm thought that the word "new" is not sufficient. It had to be "the newest" product, to be better than others, although the product in question was merely a duplicate of an already existing preparation! Among the 350 odd "new products" introduced yearly, how many are really new chemical entities? Only a little over ten per cent; and some of these are merely chemical variations of other existing basic products.

In general it is true that the development and sale of new chemical entities

* Read at Midwest Regional Group, Medical Library Association, Elkhart, Indiana, October 15, 1955.

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will bring the manufacturer the highest profit and prestige, but there are also exceptions to this rule. About ten years ago a simple combination of belladonna alkaloids and phenobarbital was placed on the market, and this product is today the sixth largest prescription item.

"Product development" means many activities and techniques. The following are some of the most important:

1. Development of a new chemical entity—based on basic chemical research, such as chlorpromazine.
2. Pharmacologic screening of new chemicals made in the laboratory.
3. Making derivatives of known chemical agents—such as the 500 and more derivatives of barbituric acid that have been made during the past 45 years.
4. The selling of products consisting of a single chemical already marketed by another manufacturer: so called duplicate products, like the various brands of reserpine, tetracycline, prednisone, etc.
5. Formulation of compounded products. This is by far the largest group of all new products introduced yearly, representing about 64 per cent of the total. These are products consisting of more than one ingredient. They may be preparations where a firm has previously offered a new chemical agent and decides to add another to it to broaden its indication, such as the combination of serpasil and apresoline, or the combination of anticholinergics with sedatives. Other types of this group are the hematinics and vitamins, or pure vitamin combinations, or products for geriatric use. These sometimes result in a combination of 20 or more ingredients offered in a size capsule which a horse would have difficulty in swallowing!
6. Testing of soil samples to find new antibiotics. Large fortunes have been spent by the industry on this type of lottery.
7. The development of new dosage forms: capsules, spansules, ampuls, etc.
8. Finally, another phase of product development not to be overlooked, is the improvement in manufacturing procedures, or in stability and palatability of a product.

From this we see that even the basic factors involved in product development cover a rather complicated and many-sided endeavor. For our discussion today I would like to limit myself to the items 3, 4, and 5; that is to say—

Development of new variations of previously known chemicals.

Duplicate single products.

Compounded products.

It is in these that the librarian can be most helpful in research and marketing. Before starting applied research on any of these types of compounds the manufacturer will ask himself the following questions:

Is there a need for the product in a given field, that is, is there room for improvement?

Does the product in some way make a real contribution to therapy or to the convenience of the physician and the patient?

Does the product have a large potential market?

There are many additional factors concerning not merely development, but also financing and marketing, which require careful consideration before development work can be started. Those enumerated above are, however, basic and apply to all situations. In a similar manner, practically every new product has to go through the same steps of development until the final point of marketing is reached. During the course of this development the library plays a very important part in many of these phases. Contribution from the library will be required from the preliminary search to marketing date and is to be maintained as long as the product is on the market. If we review the entire schedule of development of new products, this can be divided into two major phases:

Research and Marketing

I shall discuss some of these steps rather briefly, and dwell more fully on those where the service of the library comes into the picture.

Preliminary Search

This is the basic investigation which has to be carried out prior to embarking on any phase of the development work on the three subjects under discussion.

a) *Market Research.* In the pharmaceutical industry market research has a much broader coverage than merely a compilation of statistics on sales and frequency of prescriptions. Competitive products must be evaluated both from the point of view of the pharmaceutical chemist and their therapeutic action. For instance, aside from the aspect of chemistry of available products, consideration must be given to:

Available dosage forms
Solubility of chemical
Dosage
Period of action
Frequency of use
Acute and chronic toxicity
What age groups are affected?
Can such products be sold without a prescription?
Who are the manufacturers of competitive products?
Selling prices
How heavily are competitive products advertised?

Such comparison of products already on the market must always bear in mind: is there room and need for improvement, and is such improvement possible on a theoretical basis?

b) *Literature Research.* This is where the librarian comes into his first contact with a new product that is under consideration for marketing. You are of course quite familiar with the literature search covering available products and current therapy. The thoroughness with which such a review is made can save a great deal of time and effort. An overlooked reference or an incomplete abstract found incorrect a year later may jeopardize the entire project. In a review of this nature it is, I think, important to know what data one is to look for in a given paper. It is advisable that the research department issue specific instructions in this regard to the librarian.

Abstracting is difficult to do at best. I think there is definite room for improvement, so that an abstract will not merely show what the author stated, but also what he *omitted* to report, in his tables, discussions of results, etc. Too frequently the author's summary is used as a basis for the abstract. This can be quite misleading, because unfortunately too many authors omit important information, or their tabulations are not always correct.

c) *Patent Search.* The patent department of a firm will be asked to make a search as part of the preliminary consideration of the project.

d) *Source of Raw Material.* Some thought will have to be given at this time to the question: Are we going to make the finished product or are we going to purchase it? If the product is a duplicate single compound and if it is to be purchased from another firm: does the supplier have a master file for an effective new drug application with the Food and Drug Administration?

e) *Evaluation.* All data compiled during the preliminary search are to be evaluated by competent personnel for decision by a product development committee, a research committee, or a director of product development. The procedure of arriving at such decisions varies with different firms. It is immaterial what committee or persons are charged with this decision. The important fact to bear in mind is that such evaluation is made at this time to decide whether the project under review is feasible and what further research is needed.

Applied Research

If it is decided that an attempt be made to develop new derivatives of a compound in a given field or to prepare certain new compounded preparations, chemical and pharmacologic studies are now in order. These investigations are time-consuming. They may be carried out at the manufacturer's own laboratory or they may be farmed out, or carried out in both places simultaneously.

The scope of the pharmacologic studies depends upon the type of product under consideration. An entirely new chemical or a new derivative of an old compound requires the most elaborate studies. These investigations have to be made in various species of animals and over an extended period of time. The Food and Drug Administration demands today rather extensive data on the toxicity of a drug. The point of view of the Food and Drug Administration was

recently very ably discussed by its medical director, Dr. A. H. Holland, in a paper entitled: "To Market or Not."

Patentability. In the course of this development work the patent department of a firm will no doubt keep a careful watch on the progress of the work, in order to determine when and whether a patent application for a product patent should be filed with the U. S. Patent Office.

While all this is going on, the librarian is still very much part of the picture. Alertness in looking for references regarding new and favorable developments in the given field can further the project. On the other hand, if research by other investigators is discovered which suggests an unfavorable action of the compound under investigation, it may be advisable to discard the entire project. The international medical literature is today so vast that it is impossible for the individual research worker to follow it thoroughly. The watchfulness of the librarian is therefore most important. In addition, the circulation of journals from department to department is sometimes quite delayed—copies are in the habit of being lost on people's desks and sometimes in their homes.

Evaluation. Completion of the chemical and pharmacologic studies requires again a critical review of the data collected, raising the questions:

Does the product seem to offer advantages over those available today?

Will it be safe to use in humans?

Clinical Research

With the initiation of clinical research, the new product enters the most critical phase of its entire development. Will it produce the same results in human beings as in animals? Before clinical studies can be initiated, a number of things will have to be done.

1. The material required has to be manufactured or purchased and then compounded; that is, the proper dosage forms have to be prepared.
2. Specific labels for research purposes have to be prepared which comply with the regulations of the Food and Drug Administration.
3. The pharmacologic data have to be presented to the clinician in such a manner that they will be a guide to him in the first use of the product in humans.
4. Arrangements for product control will have to be started.
5. Stability studies of various dosage forms must be continued.
6. An estimate should be made of the funds needed for clinical research.

A great deal has been written about how clinical studies of new products should be conducted. This is not the place to add to this discussion, but a few highlights might be mentioned. If you keep these in mind when reviewing published reports on other preparations, you will be in a better position to appreciate the quality or lack of quality of the data presented by the author.

1. It is only the carefully controlled study that carries real weight. Controls may be obtained by various means.
   a) Evaluation by laboratory tests, X-rays, blood and urine tests, and others.
   b) Taking a given number of patients who suffer from the disorder to be treated and dividing this in two. One-half receives the new drug and the other half receives no, or another kind of, medication. This type of study is not carried out as frequently today as it used to be.
   c) The so-called "double blind" test with placebos, where neither the investigator nor the patient knows whether the active drug or a placebo is given.
2. Have comparisons with other drugs been made, preferably under "double blind test" conditions?
3. Are the results obtained statistically significant? Only a statistician can make a decision on this.
4. Are the tables presented clearly, and do the data coincide with the author's conclusions and discussions?

Evaluation. After sufficient clinical data, not merely impressions of investigators, are available in written form, a final reappraisal of the action of the product is needed before marketing plans can be drawn up. It cannot be emphasized too strongly that the quality and extent of pharmacologic and clinical studies, as well as an unbiased and critical appraisal of the information, will be decisive regarding the future success or failure of a new pharmaceutical product. Part of this evaluation is also a reappraisal of the competitive situation as it developed while the product was being investigated. Developments in the drug field are so fast these days that an apparent "new product" can be outmoded by the time it is ready for sale. It is true that speed is necessary in today's market, but this should not overshadow the need for adequate clinical trial. Such neglect can be exceedingly costly. Product failure is today a major expense for the industry. This applies to all types of products, whether they are entirely new chemical entities, duplicate single products, or compounded preparations.

Nobody can guard himself completely against the occurrence of side-effects which only become statistically significant after a product has been used in hundreds of thousands of patients, as was the case with Chloromycetin. As a matter of fact, after a sudden condemnation, this product is staging a remarkable comeback. But a manufacturer could offer no excuse if the sequence of events followed the course which was described by a physician who recently wrote a paper: "Drug-Induced Blood Dyscrasias." He claimed that the discovery and trial of a promising new drug has shown that it follows a rather definite pattern.

Laboratory Promise—Limited Clinical Trial—Initial Encouraging Results—

Banner Headlines in the Lay Press—Pharmaceutical Fanfare—Rumors of Trouble—Definite Reports of Dangerous Complications—Condemnation—Revaluation.

There is one item which was omitted from this list, viz: overenthusiastic and uncritical use of a new product by some physicians. This has been the case with the antibiotics and also applies to the antiarthritic, Butazolidin. Responsible physicians recognize this danger and have cautioned against it.

Marketing the Product

When the decision to market the product has been arrived at, every effort will have to be made to see to it that it is ready for sale as speedily as possible. Any delay in marketing can be regarded only as an unnecessary additional expense to the company.

The action to be taken for the marketing of a product might be summarized as follows:

1. Careful coordination of all marketing activities.
2. The application of known marketing techniques to a particular product.
3. The development of effective selling ideas geared to the new product.

Trade-Marks. A good trade name is a major asset in the sales campaign of any new product. Some people claim that a good trade-mark is even more valuable than a patent: the patent expires—a good trade-mark goes on forever. To find a trade-mark that is distinct, euphonious, and registrable is a very difficult task. Those charged with this endeavor have spent many trying hours checking price lists, encyclopedias, and other reference books. With the large number of new trade-marks applied for yearly, the selection is becoming progressively more difficult. To find a good mark is a much more arduous task than trying to answer the $64,000 question. It would be nice if it were paid for accordingly!

New Drug Application. Immediately after the decision to market a product has been made, a new drug application should be submitted to the Food and Drug Administration. The definition of a "new drug" is rather comprehensive, and expert advice is needed to guide the manufacturer in his dealings with the government in this respect. In non-legal terms, the definition of a "new drug" comprises approximately the following:

A new chemical substance.

A new excipient or coating in a tablet—a new solvent or other non-active component not previously used.

A new combination of previously known drugs or a new proportion of previously combined drugs.

A new therapeutic use of an old drug.

A new dosage, method of administration, or change of duration of administration of an established product, whose safety is not generally recognized

by qualified experts or which has not been used for sufficient time and extent to guarantee its safety for use.

Very few people, aside from those who are directly concerned with its preparation, have any idea how comprehensive a document an application to the Food and Drug Administration has to be. Although the application is primarily concerned with the safety of the new drug, data on therapeutic efficacy of a new compound are usually submitted. In general, the following type of information has to be supplied:

Chemical data including standards and analytical methods for identification and assay of the raw materials as well as the finished product.

Pharmacologic studies.

Clinical data including laboratory studies with blood counts, urine analysis, liver and renal function tests.

Label and package insert.

Brochure to be sent to physicians.

The full list of ingredients used as components of the drug, including incipients of the tablet.

Samples of the product.

Description of Manufacturing Controls. These have to be described in detail from receipt of raw material until the finished product is packaged and labeled and ready for sale. Data on manufacturing methods also may have to be supplied.

Timetable for Marketing. After the above tasks are out of the way, a timetable for marketing the product is usually set up which is coordinated with the company's overall marketing plans. Even though speed is important in bringing the product to market, enough time has to be allowed to permit taking care of many details. Such a timetable will include provision for manufacturing, distribution to the trade, and final promotion plans for the product.

Selling Price. Part of the preliminary marketing work includes also the calculation of a selling price to the trade and to the consumer. Preliminary calculations are, of course, made in the early development stage to determine whether a reasonable selling price is feasible or not, or whether new methods of manufacturing have to be worked out to bring the cost down to an acceptable level.

Test Campaign

In the past the pharmaceutical industry has not experimented too much with test campaigns which have frequently been employed very successfully in the proprietary drug, and other industries. Today, however, because marketing costs have increased to such an extent, many firms are—time permitting—using this method as a final appraisal of the marketability of a product before

its national introduction. In setting up a test campaign in a limited area of the United States, it is important that the scale of expenditure be in proportion to that of a national campaign, otherwise erroneous conclusions would be made.

Final Marketing

Before final marketing can be undertaken, a series of calculations has to be prepared. Those listed below are the most important ones to be made, but there are many others.

1. *Preparations of a sales estimate* for a period of 6 to 12 months. This is a most difficult undertaking. It requires knowledge of the product to be marketed, consideration of past experience with similar preparations, a great deal of guess work, and courage to arrive at a reasonable figure. To underestimate sales is sometimes more dangerous than to overestimate them, because it may result in a shortage of supplies which can endanger the final success. There are many factors to be considered, and to enumerate them all would require presentation of another paper.

   Part of the preparation of the sales estimate is the calculation of the cost of goods to be sold so that an estimated margin between manufacturing cost and income from expected sales can be determined, the so-called gross profit.
2. *Estimate of promotion cost.* How much advertising is required to gain the the physician's attention, which, as a matter of fact, is progressively more difficult to attain. The type and scope of promotional expenses vary with each product. Here, too, there is no golden rule to follow. Experience and knowledge of the market and of promotional methods are needed. Promotion of a product is usually divided into four general areas.
   a) sales promotion by professional representatives, calling on physicians and hospitals.
   b) advertising by direct mail and in journals.
   c) mailing of samples to physicians.
   d) motion pictures and television.
3. *Manufacturing.* On the basis of the sales estimate and timetable of marketing, orders are now placed with the manufacturing department.
4. *Basic medical information.* While these calculations are being made, the medical department of a firm will have reviewed all experimental and clinical data. These are to be used as a basis for writing of advertising copy and instruction of representatives. The claims to be advanced for the product must coincide with those stated in the New Drug Application and in the physician's brochure accompanying such application.
5. *Writing of copy.* Most pharmaceutical firms engage an advertising agency which is charged with the preparation of copy, its printing, and the placing

of advertisements with various journals. The cost of journal and direct by mail advertising must be within the limit of the previously budgeted expenditure approved for this type of promotion.

6. *Coordination of marketing.* From 3 to 4 months may be required to carry out the various steps discussed above. The progress is reviewed from time to time to determine whether the previously set marketing date can be maintained. This is not always easy, and constant follow-up is important in order to keep to the schedule, because delays can be very costly.
7. *Distribution of the new product.* By distribution of a new product is meant the availability of the preparation at the wholesale and especially at the retail level, so that the patient does not have to wait to have his prescription filled. Firms with a large sales force can see to it that the most important pharmacies carry some stock on hand. Other firms have sent the retailer a small free sample of the new product which he can use to fill his first prescription. To effect proper distribution is most important even though it may be costly and tax the company's finances.

Selling the Product. Now that the product is available, the real job of selling is to begin. With the product living up to its expectations, with luck and perserverance, the manufacturer can look forward to a satisfactory financial return from his substantial investment, and the patient can expect improved relief from his illness.

The librarian's work does not, however, end once the product has been marketed. Permanent review of the literature will bring to light new publications on the product and those sold in competition with it. All such information is most important for the future marketing of the preparation.

I have tried to discuss with you in a somewhat condensed manner the complexity of product development and marketing. You will have seen that it is not a single man's job, but a cooperative effort requiring the attention of all departments of a pharmaceutical manufacturer. I have also pointed out to you how you, the librarian, can contribute to its success. Many of you are, of course, quite familiar with this subject. Sometimes, however, it is worth while to review what we are doing and what we are trying to achieve. I should be pleased if I have been able to contribute to your knowledge of this interesting and important topic.

The Library of the College of Medicine of the National Taiwan University

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As part of the program of the public health division of the International Cooperation Administration (ICA) for the rehabilitation of the College of Medicine of the National Taiwan University, Doctor Wilburt C. Davison, Dean of the School of Medicine of Duke University, was sent to Formosa to survey conditions and make recommendations. As one of his recommendations Doctor Davison suggested that consultants for each department of the medical school be sent to advise the Dean and Heads of Departments regarding the organization of their respective departments. Included in this recommendation was a medical librarian consultant to advise and assist in the organization of the library. Since the end of World War II the Japanese faculty had been replaced by Chinese members, many of whom had been brought to America for training. As a result of their experiences in American institutions, the faculty adopted a resolution establishing a central library of the College of Medicine and requesting the services of a consultant to assist in its organization. During the Japanese occupation departmental libraries had been the practice, following the custom in Europe. With the renovation of the medical library building it was now feasible to consolidate the various departmental collections into a central library. As a result of the recommendations of Doctor Davison and the resolution adopted by the faculty of the College of Medicine, the ICA office asked the writer to accept the appointment as medical librarian consultant for a period of three months. This the writer agreed to do.

After a short period of orientation in Washington the consultant left for Formosa, arriving in Taipei July 11, 1955. The first two or three weeks were a period of orientation. Visits and consultations were held with the directors of medical agencies, and various educational institutions. The libraries of the medical agencies are below the Western standards of librarianship, but it was gratifying to learn how conscious the leaders in the educational field were of the need for improvement in their libraries and library services. There are two medical colleges in Taipei, the National Defense Medical College and the College of Medicine of the National Taiwan University. The nursing schools are in the process of reorganization. A WHO team of nursing instructors is organizing a collegiate school of nursing. The Taipei Provincial School of

Nursing has a very creditable library. The Collegiate School of Nursing has purchased the books necessary for their instructional program, but they have not yet been classified.

The National Taiwan University has the usual university organization. There are colleges of arts, sciences, and engineering. The university library is composed of a central library with 50 departmental libraries. The director of the library is also head of the Psychology Department. Under the director is the Division of General Affairs which cares for the administrative responsibilities of the library. The remaining activities are divided into two services, the Department of Technical Processes, and the Department of Readers Services. The Department of Technical Processes is composed of the divisions of acquisition, catalog, and periodicals and exchange. The Department of Readers Services has two divisions, the reading room and the stacks. The reading room division is responsible for supervision of the reading rooms including circulation, while the stacks division cares for photostating, binding and mending, the union catalog, and the administration of departmental libraries.

The medical school library, although an integral part of the university library system, functions under the supervision of the Dean of the Medical College. The staff consisted of eight members, only two of whom were university graduates. The remaining members were high school graduates. The greater portion of the book and journal collection had been assembled under the Japanese. The books were largely Japanese titles, most of them too old for modern reference. There was quite a large collection of books on non-medical subjects, a hold-over from the days when the medical college admitted students after graduation from elementary school, and the college taught non-medical subjects. There were at least six different classification systems. The three main ones used were the Liu Classification System for recent Oriental books, the Universal Decimal Classification System for all of the old books with a separate grouping of more recent Western books, and the Library of Congress System for Western books from 1950 to date. The card catalog was a combination of shelf list or class catalog, and an author, subject, and title catalog grouped separately. The catalog cabinets were in different locations. Most of the catalogs were in the work room, and only the catalogs of recent books were in proximity to the circulation desk. The catalogs were grouped by the subject classification used, and organized somewhat as follows. The recent Oriental books classified by the Liu System had a class catalog. There were three different groupings of catalog cards for books classified by the U.D.C. System. There was a class catalog and an author catalog of all old books and finally a separate author catalog of the more recent Western books (approximately 1945 to 1949). All of the Western books (practically all American titles) classified by the L.C. System since 1950 had a separate author,

subject, and title catalog. It was the practice of the library to furnish textbooks to the students. Therefore, there were many copies of about 50 of the standard texts used in American schools.

The journals were in the process of being brought into the library from the various departments. As a result they were in no order. Most of them were on the floor. The collection did consist of many long and complete runs of the most valuable German sets. Certain American journals were complete, but by far the journal files were incomplete. The *Current List of Medical Literature* and the *Quarterly Cumulative Index Medicus* were available in part.

The rules and regulations for checking out books were as follows. Books were loaned to faculty members indefinitely. Student loans were restricted to two weeks. The book card contained the usual information about the books, i.e., title, author, accession number, and classification number. The borrower was required to sign his name, and the card was filed by department in the case of a faculty member and date checked out in the case of a student. An additional record of all books checked out was kept in a recording book. Wooden dummies on which was written the author, title, and date checked out were also used and filed in place of the borrowed book. The students had a borrower's booklet with their name, picture, and identification number. The title of the book, author, accession number, call number, and date due were recorded in this book. When the book was returned the date returned was recorded. For library use, a borrower was given a card with an identifying number. A duplicate card was attached to a slip on which was written the author, title, accession number, and the borrower's name and class. This was filed by the identifying number. On returning the book, the borrower presented his numbered card with the book. The slip was then pulled.

A separate medical library was located in the University Hospital which was affiliated with the Medical School. This library served the clinical departments, which were all located in the hospital, and junior and senior medical students. The librarian was responsible to the Director of the Hospital although under the supervision of the medical librarian. The best collection of clinical book material was present here. The hospital librarian did his own classifying of books using the Nippon Decimal Classification System. The library did not provide adequate reading room facilities for its borrowers.

The medical school library building was adequate. It had just been renovated, and had four levels of stacks capable of holding 90,000 volumes, a large work room, the librarian's office, two large reading rooms, and a browsing room.

It was realized that there was no simple solution in solving all the organizational and functional problems of the medical library. The medical library is simply a product of librarianship on the island which in turn is a product of the social, economic, and political situation existing in Formosa. The final

solution of the library problem is education. Librarians must be trained in order to take their rightful place as a member of the learned professions. From the consultant's standpoint the first thing that had to be done was to bring order into the library. The books and journals had to be organized so they could be found, and then secondly there was the problem of educating the faculty and staff in regard to the function of the library.

The most pressing problem was the organization of the journal collection. The journals had to be placed on the shelves so they could be used. The best way was to file them alphabetically, but the problem then arose as to what to do with the Japanese and Chinese titles. It was decided to Romanize all of these titles and file them alphabetically by their Romanized title. This the library staff was able to do without any difficulty and the job of filing the journals alphabetically was completed. The current journals were arranged for display as follows. The pre-clinical journals were displayed in the reference room, while the clinical journals were filed in the hospital library for two months. This was decided upon since it would give the clinical faculty an opportunity to review the literature. A more efficient system for recording the receipt of journals was organized. One of the great needs was an increase in the number of currently received journals. A list of 150 journals was compiled with the help of the faculty members, and every effort is to be made to secure funds for placing these subscriptions. Since completing the journal file was so important, steps were taken to activate the contract the university had with United States Book Exchange for the purpose of supplying as many as possible of the missing numbers.

The first step taken to organize the books was to weed out the old and obsolete material. This proved difficult since no book purchased by the school could be discarded. This problem was solved to some extent by moving such material into an adjoining warehouse. Arrangements were made to move books not related to medicine to the main university library. A reference collection was organized and housed in one of the reading rooms. This collection consisted of the dictionaries, encyclopedias, indexes, and abstract journals. The Public Health Office of ICA agreed to purchase 33 of the most badly needed reference sets and books, and when these arrive this collection will be materially strengthened. The reserve books were also defined and organized. With the time available very little could be done towards reorganizing the card catalog. A dictionary catalog for books received since 1950 and cataloged by the L. C. system was organized by filing in one alphabet all author, title, and subject entries. A project was laid out for typing all subject entries. Tracings had been made by the university cataloger but the cards for them had in most cases never been typed. The old loan system was in a large measure discarded, and a much simpler system installed which would permit the librarians to tell what books were checked out and when due. The concept was introduced of having definite loan periods for books and journals.

Of necessity a great deal of time was spent with the staff members themselves. The first problem was to raise the educational standards of the librarians. One of the young men with three years experience in the medical library was promoted to acting librarian, and two university graduates were transferred from the main university library to the medical library. Those with the best qualifications were assigned as reference librarians. A schedule was outlined giving the duties, responsibilities, and work schedule for each member of the staff. Several conferences were held with the Dean of the Medical School who cooperated in every way possible. Talks were made to the medical faculty, the nursing students, and the library staff in regard to the function of the library. A library committee of faculty members was organized and two meetings were held outlining the responsibilities and duties of the committee in preparing lists of books and journals to be purchased and assisting the Dean and Librarian in enforcing the rules and regulations of the library. Every effort was made to instill in the librarians the concept of the service function of the library and particularly the reference service. The greatest effort made in educating the librarians was the formal instruction in medical library practices given to the library staff of the College of Medicine, the National Defense Medical Center, the Hospital Library, and the School of Nursing of the University. This instruction was given for a two hour period each week for five weeks. Instruction included organization of a library, library terminology, medical terminology, library citizenship, the principal reference books, bibliographies of books, indexes to the book collection, the periodical indexes, and the compiling of bibliographies. The instruction was composed of lectures, discussions, exercises, reports, and tests. The interesting factor in the instruction was the ability of the class to understand, speak, and write the English language. In only a few instances was it necessary for one of the class members to translate the instruction into Chinese.

This briefly is an account of conditions existing at the Library of the College of Medicine of the National Taiwan University, and what was done to try to organize the collection and educate the faculty and staff in the function of the library. It was a very interesting experience. The Mission personnel and the Chinese people made the consultant's stay a very pleasant one. Doctor Huoyao Wei, Dean of the College of Medicine, Professor Hsiang Yu Su, Director of Libraries, and Doctor James Ward, Director of the Public Health Office, cooperated in every way possible. It was a privilege to have shared in some small way the development of medical librarianship in Formosa. For this opportunity the consultant is very grateful.

Notes on the Medical Museum of the Armed Forces Institute of Pathology

By Helen R. Purtle, *Assistant Curator*

Medical Museum
Armed Forces Institute of Pathology
Washington, D. C.

THE Medical Museum is one of four major components of the Armed Forces Institute of Pathology, formerly the Army Medical Museum. In 1862 Surgeon General William A. Hammond established the Army Medical Museum for the purpose of collecting specimens and related records of wounds and diseases incurred in the Civil War for study by medical officers in Washington, in the hope of reducing mortality and suffering among the soldiers.

The Army Medical Museum was originally given space in the Surgeon General's Office at 180 Pennsylvania Avenue. When it became essential to obtain larger quarters, the Corcoran School House on "H" Street was taken possession of by the Government and turned over to the Medical Department for the use of the Army Medical Museum. The contents of the Museum were moved by ambulance to the Corcoran Building. After the assassination of President Lincoln the Museum was again moved, this time to the Ford Theatre, and by order of the Surgeon General was opened to the public on April 16, 1867. While the Surgeon General's Library was also housed in the Ford Theatre, it was not until 1883 that the Army Medical Museum and the Library were consolidated into one division. With the steady growth of both the Library and the Museum, it soon became apparent that larger quarters were necessary and in 1887 a new fireproof building was erected on "B" Street, now Independence Avenue, at 7th Street, to house both these institutions.

When Dr. John Hill Brinton was named first Curator, the collections in the Army Medical Museum consisted of three dried and varnished specimens placed on a little shelf above the ink stand of the Curator's desk. In January 1863, only a few months after its beginning, the first catalogue of the Army Medical Museum was published. This showed a collection of 1,349 items. Once established the Museum's collections grew rapidly and the intent of the Museum was soon recognized both by the medical profession and by Congress, the former by submitting material and the latter with a yearly appropriation of five thousand dollars to "insure its continuance as well as its success."

Illustrations and plaster-cast models showing the results of surgical operations were made as early as November 1863. These were deemed to be instructive and valuable aids for future reference and study. In 1867 Surgeon

General Joseph K. Barnes invited medical officers to contribute veterinary specimens, monstrosities, Indian warfare material, and examples of poisonous snakes and reptiles, to supplement existing collections.

Dr. John Shaw Billings was appointed Curator of the Army Medical Museum and Librarian of the Surgeon General's Library in 1883. While touring Europe in 1884, in search of old books and items of medico-historic interest, he arranged with John Mayall, Jr., a secretary of the Royal Microscopical Society, London, and a well-known collector of microscopes, to purchase representative instruments for the Museum. It was Dr. Billing's hope that the Museum would ultimately have the largest and most complete collection of historic microscopes in the world. As a result, the Museum today has well over 500 microscopes, with 365 original designs. The earliest is a replica of one made by Hans and Zaccharias Jansen sometime between 1590 and 1608, and the latest is an electron microscope made in 1944 by the Siemens Company, Berlin, which Adolf Hitler purchased for his personal physician, Theodore Morrell. This latest accession was presented to the Medical Museum by the Signal Corps by whom it had been confiscated in Germany during World War II.

Thus, through the efforts of Surgeon General Joseph K. Barnes and Dr. John Shaw Billings, the scope of the Army Medical Museum was greatly broadened. While collections of microscopes, surgical instruments, and other types of medical material were added, the original intent of the founder of the Army Medical Museum was not lost sight of. The Army Medical Museum gradually became a diagnostic and research center. In 1946 it seemed appropriate to change the name to the Army Institute of Pathology, the better to reflect its major activities. It was at this time that the Medical Museum was designated as one of the four departments of the new Institute. With unification of the military services, the name was changed to Armed Forces Institute of Pathology in July 1949.

Chase Hall, a temporary building on Independence Avenue between 8th and 9th Streets was procured for the Medical Museum since space was no longer available in the building on 7th Street and Independence Avenue, and plans were made to move all exhibit material. In May 1947, this move was completed and the Medical Museum in its present quarters was officially opened to the public. Because this building was shared with other activities of the Army Institute of Pathology, exhibit area was extremely limited. Much of the contents of the Museum had to be consolidated, with the result that more than half of the historic, valuable, and irreplaceable items found their way into footlocker storage. When the Armed Forces Institute of Pathology, early in 1955, moved to its new building on the grounds of the Walter Reed Army Medical Center, the Medical Museum was separated into two sections: the Professional, or Advanced Teaching, Museum and the Public Museum. The former, intended primarily for the medical profession, and the Museum labora-

tory are located in the new building; the Public Museum remains in its downtown location.

Through the years the Medical Museum has been designated as the repository of historic instruments—in 1896 by the American Dental Association, in 1901 by the American Ophthalmological Society, and more recently by the American Urological Society. From time to time these societies present historic instruments to the Medical Museum to be placed in their respective collections. Shortly before his death in 1950, Dr. Harry Friedenwald of Baltimore presented to the Medical Museum his most cherished instrument—one of the first ophthalmoscopes made from the drawings of the inventor, Herman von Helmholtz. Collections of trephined skulls, Peruvian mummies and pre-Columbian bones, medals and stamps, original illustrations of wounds and diseases, surgical instruments, and other items of medical interest and importance have found their way into the Museum. These have been contributed by other museums, medical schools and libraries, governmental agencies, and by individual physicians and laymen.

The diversified interests and knowledge represented by the visitors necessitate departure from some of the traditional techniques for display of exhibits. Fortunately, the great variety of material available makes it possible to intermingle exhibits which will appeal to each level of interest. The Museum may combine in one room such varied exhibits as one on paleopathology, another on bloodletting practices, and a third on surgical instruments used in the Revolutionary War.

Much of the exhibit material is displayed in glass, dustproof cases. Where possible these cases are arranged in cubicles so that persons who are studying hearts, for example, are not disturbed by those viewing the exhibits of congenital abnormalities. Table-height cases containing selected items of medico-historical interest are scattered in accessible areas, and panel exhibits, usually 7 feet high and 12 to 24 feet in length, occupy available wall space.

There are differences of opinion as to the best method of displaying large collections, such as the Civil War bones or the microscopes. For instance, some favor showing only microscopes that have played an important part in the evolution of this instrument; others recommend showing each and every item because the size of the collection is in itself extremely impressive. Because of space limitations, it is possible to exhibit only about two-thirds of the total collection. These are arranged chronologically in glass wall cases, and labeled with both the designer's and maker's name. In displaying other collections of instruments, only those that show a definite change in design are selected for exhibit, the rest are filed in easily accessible storage and available for study by serious students.

From time to time panel exhibits are planned by the Museum staff, and subsequently constructed by the Medical Illustration Service of the Armed

Forces Institute of Pathology. In planning these exhibits an attempt is made to apply four basic principles: unity, clarity, accuracy, and brevity. It is important to present a connected story supplemented with pictures, original medical illustrations, and three-dimensional models. The story must be told completely and accurately in as few words as possible so that the visitor has a clear concept of one exhibit before passing on to the next. The title should at once convey the meaning of the exhibit. The captions should be clear, concise, and large enough to be read at the viewing distance of the object. The lighting should be adequate. Colored backgrounds are used wherever possible, and pegboard has been found to be a very successful medium for displaying small objects and illustrations.

For years one of the main attractions in the Medical Museum has been the section devoted to congenital abnormalities. To place emphasis on the normal it was decided to prepare an exhibit on human reproduction. This was accomplished with a series of paintings of the birth process, supplemented with models and actual specimens of the reproductive organs and embryos. The illustrations are done in oil on varying shaped pieces of masonite and mounted on pegboard center panels in 7 foot high glass cases. This is an exhibit that appeals to all ages and to all levels of interest.

The Museum is fortunate to have on its staff a professional sculptor who has been making excellent plastic models, such as reproductions of bacteriological plates and tubes, malaria parasites, and arthropods to illustrate disease processes. These three-dimensional models add greatly to the clarification and usefulness of the exhibits.

Stamps of medical interest, original illustrations, and anatomical charts are attractively shown on Multiplex display fixtures, and medals are exhibited in lighted, glass-top cases, with mirrored bottoms so that both the obverse and reverse sides may be seen. This serves a need of the numismatist.

Labelling presents two main problems. First, the label must be readable. Where possible, the legend should be printed or typed and enlarged photographically. As the former is outside the scope of the Medical Museum, and as the latter would place too heavy a burden on other departments of the Armed Forces Institute of Pathology, an electromatic typewriter with large type is used. The labels are then sprayed with plastic, to prevent smudging, and mounted on cardboard for durability. For main captions die-cut letters of varying sizes are pasted on colored cardboard or painted masonite, usually 4 inches in width. The length is, of course, determined by the amount of available space.

Secondly, the legend must be understandable. A satisfying label for the layman may be unsatisfactory for the visitor with scientific training. Moreover, interest-arousing information and scientifically important information, although both essential, can not successfully be placed on the same label, unless

the goal is a "collection of labels illustrated by specimens." The Medical Museum uses one explanatory label as an introduction to each subject, and short, concise, and simply worded labels for each item.

The educational potential of the Medical Museum was recognized as early as 1863 when Dr. Brinton addressed a letter to Acting Surgeon General Barnes requesting permission to deliver an evening course of lectures on military medicine and surgery in the halls of the Museum. Approval had to be obtained from the Secretary of War whose reaction was "They will go to the theatre and neglect their duties. It shan't be." Thus ended, for a time, a well thought out plan for disseminating a correct and general knowledge of military medicine and surgery. However, in 1888 Dr. John Shaw Billings, Curator and Librarian, announced the policy of making the educational facilities available to the civilian medical profession, and lectures and demonstrations were given to members of Congress, physicians, and lay groups interested in medical problems.

Early in 1865 arrangements were made for exchange of museum items with the Royal College of Surgeons, London, the Society for Medical Improvement, Boston, and the Pathological Society, San Francisco. In 1867 an exhibit consisting of an ambulance, medicine wagon, four litters, and a model of a general hospital were sent to the Paris Exposition. Exhibits were sent from the Museum to the Exposition at Philadelphia in 1876, and in 1892 to the Columbian Exposition, Madrid.

In keeping with these early traditions, members of the staff of the Medical Museum give lectures and tours of the Museum to medically minded civic groups, science classes, medical students, and nurses. The facilities of the Medical Museum are available to the Junior Scientists of the Washington area; members of the Museum staff take an active part in their annual fairs and are represented on their Board of Judges. Each year space in the Medical Museum is made available for ten or twelve of their outstanding exhibits. Each year both the format and content of these exhibits are better presented. Museum items are available for short-term loan to other museums, medical schools, libraries, and governmental agencies, and exhibits are shown at scientific meetings as well as at local county fairs. Occasionally exhibits of current interest are borrowed from the U. S. Navy, Veterans Administration, Armed Forces Medical Library, medical societies or research foundations for display in the Medical Museum. A scale model of the U. S. Hospital Ship Haven, has been on loan from the Navy for the past three years. Oil paintings of World War II medical art have been borrowed from the Army and the Navy. Frequently the "Exhibit of the Month" prepared by the Armed Forces Medical Library is displayed in the Museum the following month.

A program of educational medical films has been set up for Sunday afternoons; they are shown to capacity audiences. A member of the Museum staff is

available seven days a week for guide service. Arrangements are made each year with local schools for classes to have conducted tours of the Museum. Leaflets of special interest are prepared for distribution to visitors and it has been gratifying to learn that science students are given credit for making use of these leaflets in their classroom work.

The Medical Museum includes in its plans for the future a series of exhibits on specific diseases to supplement existing displays of specimens; the remounting of specimens in modern plastic containers; the use of medical illustrations as backgrounds for case exhibits; the creation of dioramas depicting significant events in medical history, and the development of transparent (plastic) push-button anatomical models and question-answer panel exhibits to induce audience participation. It is also hoped that catalogs of the various collections in the Museum will be prepared for publication.

These plans are based on the obvious need of the Medical Museum and for the appropriate utilization and display of the unique collections which have accumulated through the years. The most pressing need is for a suitable building. The Medical Museum should remain downtown in proximity to other museums. The valuable and irreplaceable items in its collections are certainly worthy of a safe, modern, and permanent home. In 1947 there were 83,000 visitors to the Museum; in 1955, 178,000. These figures show clearly the general and the professional interest in the Medical Museum, and make evident the desirability of adequate quarters for the housing of permanent displays.

The original aims of the founder of the Army Medical Museum and the functions of the Medical Museum today are aptly expressed in the Statement of Purpose which hangs in the front entrance:

"A national institution jointly sponsored by the Army, Navy, and the Air Force—dedicated to the collection, preservation, and display of military medical material—to provide instruction for the men and women of the Armed Forces, research facilities for the medical profession and information for the public."

A Detailed Subject Classification for Cardiovascular Reprint Libraries based on the Standard Nomenclature of Diseases[1]

By Eugene Lepeschkin, M.D.*

During the last ten years interest in cardiovascular diseases has shown a tremendous upswing. Progress in this field has been so rapid and manifold that no textbook or handbook of cardiology can be expected to keep up with it. The only adequate answer to the need of obtaining rapidly the most up-to-date information concerning a given problem in cardiovascular disease is a reprint library. Many teachers and research workers in cardiology have probably accumulated reprint libraries of their own, and these are quite usable as long as they are small or are confined to a single phase of cardiology. However, as the reprint collections grow or are expanded to include the entire realm of cardiovascular disease the problem of classification becomes increasingly more difficult. The purpose of the present communication is to describe the system of classification developed in the Cardiovascular Reprint Library of the University of Vermont College of Medicine, which comprises the entire field of study concerning the heart and blood vessels and has grown to include over ten thousand reprints during the last five years.

Two methods of filing reprints are possible. One is to file them continuously as they come in, and to prepare an alphabetical author and subject index on filing cards. This method is easiest from the standpoint of the librarian, but the person using the library must then go through the time-consuming process of locating or ordering a large number of reprints on a certain subject before he can decide whether some of them contain the information he needs. The other method is to file the reprints according to subject; it makes it possible for the user to select the papers he needs at a glance, and also to locate papers the existence of which he did not even know about by "browsing" in a certain subject category and in the categories related to it. This system is used in most libraries for filing books, but the subject classifications developed to date[2, 3]

[1] From the Division of Experimental Medicine, University of Vermont College of Medicine, and the Bishop DeGoesbriand Hospital, Burlington, Vermont.

The greater part of this work was done during the tenure of an Established Investigatorship of the American Heart Association by Dr. Lepeschkin.

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are not sufficiently detailed for single reprints. The most detailed classification developed up to the present is that of the *Standard Nomenclature of Diseases and Operations* of the American Medical Association,[1] and this classification was made the basis of the present system. However, as this Nomenclature does not include classifications for normal physiology and anatomy, certain functional entities widely used in cardiology (e.g. the cardiac arrhythmias) as well as the separate instruments and methods for the study of the circulation the classification used in this *Nomenclature* had to be amplified, and many new headings had to be introduced.

The general classification follows three main groups: an anatomical classification according to the organs of the body in their relation to cardiovascular function as well as the localization of disease within the heart and vessels, an etiological classification according to the types of disease or other factors affecting the heart and circulation, and a classification according to the methods of study, especially the graphic methods. The anatomical classification is designated by number 1, followed by a dash and then by the decimal classification used by the A.M.A. When necessary, this classification was subdivided further by introducing new numbers to the right of the decimal point. The etiological classification is designated by the number 2, followed by a dash and then by the corresponding A.M.A. classification, amplified in a similar way. The classification according to the methods of study uses the numbers 3 to 8, followed by a dash and by an arbitrary decimal classification. The number of the subgroup is marked on each reprint, followed by the consecutive number of the reprint in this subgroup on the next line. The same numbers are repeated on the index cards used for the alphabetical classification by author. The number assigned to each reprint accordingly enables it to be located immediately, and also provides information concerning the subject matter of the reprint. The lower number also indicates in a general way whether the paper is old or recent, since the older papers have the smaller consecutive numbers.

It has been found convenient to store the reprints in plywood pigeonholes 11¼ x 3¾ x 9 inches in dimension, since only about one reprint in five hundred exceeds these dimensions; such reprints can be easily trimmed to fit the required dimensions. The indicated width of the pigeonholes corresponds to about the greatest width which will allow the reprints to stand without sagging or folding in the middle; this tendency is further counteracted by a narrow binding strip made of gummed cloth (Dennison Mending Tape, ¾ inch, or Gummed Holland, 1 inch) applied to the spine of the reprint. In the case of subgroups containing a large number of reprints, each pigeonhole contains one subgroup while smaller subgroups are stored several to each pigeonhole. In the latter case they are separated by cardboard dividers, which also bear the numbers of reprints stored in other categories but containing references to the

subgroup in question (cross-reference). Index cards 9 x 6 inches are used for this purpose. In the following classification, the number of reprints contained in each subgroup in our reprint library is indicated on the extreme right in order to give an approximate idea of the relative amount of space needed for each subgroup.

The classification given below is that used at the present time in our reprint library; from time to time it is expanded by introducing new categories as these become necessary or by sub-dividing categories which accumulate a large number of reprints into smaller sections, which are then designated by adding another number to the right of the decimal point. Because of the specific interest of our department certain subjects, such as hypertension and electrocardiography, have received a more detailed subdivision than may be necessary in an average reprint library. For the same reason, papers concerning general electrophysiology have been included. These peculiarities can be easily changed to suit the individual requirements of the group using the library.

In many cases a certain reprint contains several subjects; it is then filed under the subject which appears most important to the group using the library, while the other subjects are indicated by placing the number of this reprint in the list of cross-references on the divider sheet of the corresponding category. To acquaint the user with the general location of the subjects, a copy of the classification is kept in the library; to further facilitate the location of the subject, all terms used in this classification are summarized in an alphabetical Subject index.

1. TOPOGRAPHIC CLASSIFICATION OF CARDIOVASCULAR DISEASE

(Digits according to Standard Nomenclature of Disease, A.M.A.)

1-200	*Diseases of the Bones (Influence on the Heart)*	14
1-270	Muscle Contraction, Physiology	29
1-273	Exercise, Effect on Circulation	72
1-273.5	Electrocardiographic Exercise Test	31
1-274	Diseases of the Muscles (Influence on the Heart)	8
1-300	*Pulmonary Function in Heart Disease* (see also 1-471, 3-200)	38
1-360	Effect of Respiration on the Heart	60
1-365	Effect of Pulmonary Disease on the Heart	67
1-400	*Cardiovascular Disease (General)*	49
1-400.1	Statistics (incl. insurance)	29
1-400.2	General Diagnosis	13
1-400.30	Roentgen Technique	9
1-400.31	Roentgen Diagnosis of Heart Disease (see also 1-480.1, 1-460.1, 5-100, and 5-150)	59
1-400.35	Angiocardiography	80
1-400.4	General Treatment (incl. Surgery)	36
1-400.5	Social Aspects of Cardiovascular Disease	46
1-400.6	Military Aspects of Cardiovascular Disease	5
1-400.7	Cardiologists; History of Cardiology	24

1-400.8	Cardiological Institutions and Congresses	21
1-400.9	American Heart Association	
1-404	*Mediastinum*	3
1-410	*Heart*	
1-41x.01	*Coronary Anatomy*	16
1-41x.03	Coronary Physiology	56
1-41x.05	Coronary Pharmacology	8
1-41x.10	Coronary Disease & Angina Pectoris (General)	119
1-41x.12	Coronary Disease & Angina Pectoris (Gen. Treatment)	43
1-41x.13	Coronary Disease & Angina Pectoris (Surg. Treatment)	52
1-41x.20	Coronary Occlusion & Myocardial Infarction (General)	182
1-41x.201	Atrial Infarction	6
1-41x.205	Ventricular Aneurysm & Rupture due to Coronary Thrombosis	38
1-41x.210	Treatment of Coronary Thrombosis & Myocardial Infarction (General)	32
1-41x.211	Anticoagulant Treatment of Coronary Thrombosis	52
1-420	*Pericardium (General Pathology)*	20
1-420.1	Pericarditis	95
1-430.0	*Myocardium (Anatomy)*	39
1-430.2	Myocardium (Biochemistry)	41
1-430.9	Myocardium (General Pathology)	17
1-430.93	Myocardial Hypertrophy	26
1-430.98	Myocardial Atrophy	1
1-435	Innervation of the Heart	7
1-440	Conduction System (Anatomy)	30
1-450	*Endocardium (Anatomy)* (Endocarditis, see 2-102, 2-196)	6
1-450.1	Endocardial Mural Thrombi	3
1-450.9	Valvular Heart Disease (General)	1
1-452	Tricuspid Valve (Congenital Stenosis, see 2-0-452)	10
1-453	Pulmonary Valve	2
1-454	Mitral Valve Disease, General	57
1-454.5	Mitral Disease, Surgical Treatment	109
1-455.1	Aortic Regurgitation (see also 2-147)	21
1-455.2	Aortic Stenosis (see also 2-0-461.8)	24
1-460	*Arteries (Systemic)*	
1-460.0	Anatomy	11
1-460.05	General Physiology	43
1-460.07	Vascular Surgery, General	9
1-460.10	Arterial Infusion	3
1-460.1	Arteriography	17
1-460.18	Flow-meters (see also 3-500, and 1-41x.03)	14
1-460.20	Peripheral Circulation, Physiology	47
1-460.21	Plethysmography	21
1-460.22	Oscillometry	1
1-460.23	Flicker Fusion (Retinal Arteries)	16
1-460.24	Thermometry	10
1-460.25	Peripheral Circulation, Pathology (General)	143
1-460.3	Arteriosclerosis and its Genesis	156
1-460.4	Thromboangiitis Obliterans	17
1-460.5	Periarteritis Nodosa	18
1-460.6	Arterial Aneurysm	106

1-460.7	Arterio-Venous Aneurysms, Systemic	38
1-460.79	Arterio-Venous Aneurysms, Pulmonary	21
1-461	Aorta	14
1-465	Umbilical Circulation	4
1-466	Hepatic Portal Circulation	22
1-471	*Pulmonary Circulation* (incl. Pulmonary Edema; see also 1-300)	122
1-473	Cerebral Circulation (see also 4-221)	2
1-480	*Veins* (Systemic)	
1-480.0	Anatomy	4
1-480.05	Physiology (Incl. Intravenous Injections & Infusion Pumps)	19
1-480.1	Venography	12
1-480.3	Veins, General Pathology	35
1-480.5	Venous Pressure, Methods of Measurement	8
1-480.6	Venous Pressure, Physiology	17
1-480.7	Venous Pressure, Pathology	15
1-490	*Capillaries*	
1-490.0	Anatomy	3
1-490.1	Physiology	13
1-490.3	Pathology, General	12
1-490.5	Capillary Permeability (Fragility)	16
1-500.1	*Hematologic Diseases* (Influence on the Heart)	24
1-500.5	Influence of Heart Disease on the Blood Cells	10
1-540	Lymphatic Circulation	2
1-600	*Diseases of the Digestive Tract* (Influence on Heart)	38
1-700	*Diseases of the Uro-Genital Tract* (Influence on Heart)	39
1-750	Pregnancy (Influence on Heart)	24
1-800	Endocrine System (General)	
1-810	*Thyroid*	44
1-820	Parathyroid (see 2-730)	0
1-830	Thymus	0
1-840	*Pituitary* (see also 4-270)	23
1-861	*Adrenal Cortex*	55
1-862	Adrenal Medulla (Pheochromocytoma)	65
1-871	*Pancreas* (Diabetes)	15
1-880	*Gonads* (Hormones)	6
1-900	*Nervous Influences on the Heart*	29
1-900.5	Neurocirculatory Asthenia	28
1-950	Psychic Influences on the Heart (see also 4-220)	43

2. ETIOLOGICAL CLASSIFICATION OF CARDIOVASCULAR DISEASE

2-0-	*Congenital Disease*	
2-0-010	Arachnodactyly	3
2-0-070	Lipochondrodystrophia (Gargoylism)	1
2-0-077	Lawrence-Moon-Biedl Syndrome	0
2-0-400	Congenital Heart Disease, General (incl. Embryology)	76
2-0-400.4	Cardiac Catheterization in Congenital Heart Disease	15
2-0-400.9	Surgery of Congenital Heart Disease, General	45
2-0-405	Persistent Truncus Arteriosus	14
2-0-40x	Patent Ductus Arteriosus	70
2-0-410	Dextrocardia (Situs Inversus) Levocardia, Ectopia	20

2-0-410.5	Endocardial Fibroelastosis, Idiopathic Cardiac Hypertrophy	20
2-0-41x	Anomalous Distribution of Coronary Arteries	7
2-0-41x.1	Origin of Coronary Artery from Pulmonary Artery	9
2-0-412.2	Persistent Foramen Ovale	4
2-0-412.5	Atrial Septal Defect	37
2-0-412.9	Atrial Septal Defect with Mitral Stenosis (Lutembacher)	9
2-0-413	Ventricular Anomaly, Miscellaneous	1
2-0-413.0	Ventricular Septal Defect, General	18
2-0-413.3	Ventricular Septal Defect with Detroposition of Aorta (Eisenmenger)	13
2-0-413.5	Ventricular Septal Defect with Complete Transposition of Aorta & Pulmonary Artery (Taussig)	20
2-0-413.9	Ventricular Septal Defect with Dextroposition of Aorta and Pulmonary Stenosis (Fallot)	29
2-0-435	Pulmonary Stenosis or Atresia	67
2-0-452	Tricuspid Atresia or Displacement (Ebstein)	28
2-0-453	Anomalies of Pulmonary Valve	3
2-0-454	Mitral Stenosis or Atresia, Congenital	1
2-0-455	Anomalies of Aortic Valve	3
2-0-461.8	Coarctation, Hypoplasia & Atresia of Aorta	76
2-0-461.9	Persistent Right Aortic Arch; Vascular Rings	14
2-0-481	Anomalies of Systemic Veins	4
2-0-486	Anomalies of Pulmonary Veins & Arteries	17
	CARDIOVASCULAR DISEASE DUE TO INFECTIOUS DISEASES	
2-1 to 2-2	*Lower Organisms*	
2-100	Infections (General)	27
2-101	Pneumonia	1
2-102	Streptococcal or Unspecified Bacterial Endocarditis (see also 1-450)	131
2-102.5	Scarlet Fever	0
2-103	Gonococcus	2
2-104	Meningococcus	3
2-105	Staphylococcus	0
2-106	Pest	0
2-107	Bact. Tularense	0
2-108	Pertussis	0
2-112	Coli infections	4
2-114	Paratyphus and other Salmonella Infections	3
2-115	Typhoid	2
2-116	Dysenteria	0
2-117	Brucellosis	2
2-11x	Tetanus	0
2-120	Botulism	0
2-123	Tuberculosis	9
2-123.5	Operative Treatment of Tuberculosis	15
2-124	Lepra	0
2-125	Diphtheria	14
2-129	Cholera	0
2-130	Other Bacteria	2
2-147	Syphilis	29
2-151	Amoebiasis	2

2-152	Leishmaniosis	0
2-153	Trypanosomiasis	0
2-157	Malaria	5
2-160	Virus Infection (Tonsillitis, Grippe, Cold, Infectious Mononucleosis, etc.)	11
2-161	Chickenpox	2
2-163	Epid. Encephalitis	0
2-165	Rubella	0
2-168	Influenza	0
2-169	Measles	2
2-170	Mumps	1
2-171	Poliomyelitis, Polioencephalitis	10
2-172	Pappataci Fever	0
2-173	Psittacosis	0
2-174	Rabies	0
2-176	Smallpox	0
2-177	Vaccinia	1
2-178	Yellow Fever	0
2-180	Rickettsia (unspecified)	0
2-181	Rocky Mountain Spotted Fever	1
2-182	Trench Fever	0
2-183	Tsutsugamuchi Fever (Scrub Typhus)	2
2-184	Typhus Fever	2
2-191	Bartonelliasis	0
2-196	Rheumatic Fever & Heart Disease (General)	67
2-196.1	Rheumatic Heart Disease—Prevention & Treatment	23
2-196.3	Reiter's Disease	2
2-196.6	Rheumatoid Arthritis	9
2-196.7	Scleroderma	3
2-196.8	Lupus Erythematodes	1
2-2	*Higher Organisms*	
2-202	Actinomycosis	3
2-217	Blastomycosis	1
2-219	Coccidiomycosis	0
2-241	Ascaris	0
2-243	Ankylostoma	0
2-255	Trichinosis	1
2-257	Filariosis	0
2-260	Tapeworms	0
2-278	Schistosoma 5	3
2-3	CARDIOVASCULAR DISEASE DUE TO INTOXICATION (PHARMACOLOGY AND TOXICOLOGY)	
2-310	Unclassified Substances	15
2-310.1	Barium	1
2-311	Mercury (incl. Mercurial Diuretics)	39
2-312	Lead	1
2-313	Copper	1
2-314	Zinc	0
2-315	Silver	0
2-316	Arsenic	2

2-317	Phosphorus	0
2-318	Antimony	2
2-319	Bismuth	0
2-321	Fluorine, Bromine, Iodine	4
2-331	Methyl Alcohol	0
2-332	Ethyl Alcohol, other Alcohols	10
2-333	Ether	4
2-336	Chloroform	1
2-336.5	Other gaseous anesthetics (Cyclopropane, etc.)	33
2-337	Carbon tetrachloride	0
2-338	Barbital and other hypnotica	16
2-339	Nitroglycerine, amyl nitrite, erythrol, mannitol tetranitrata	18
2-33x	Gasoline, benzine etc.	0
2-343	Phenol	0
2-345	Aniline (incl. Acetanilid, Aminopyrine)	0
2-346	Sulfonamides	7
2-348	Salicylates	5
2-352	Carbon Monoxide	1
2-353	Cyanides	2
2-354	Hydrogen Sulfide	0
2-358	Chlorine, phosgene, etc.	1
2-363	Camphor	0
2-365	Cocaine	0
2-365.1	Procaine and other local anesthetics	49
2-366	Digitalis or related glucosides	201
2-366.5	Crataegus	1
2-366.7	Rauwolfia (Reserpine)	2
2-367	Ergot (see 2-582.7)	
2-369	Nicotine, Tobacco	30
2-36x	Cardiazol, Metrazol, Aranthol, Coramine (Nikethamide)	2
2-370	Opium Group (Morphine, Papaverine, etc.)	10
2-370.5	Khellin, Visammin	17
2-371	Quinine, Quinidine, and related drugs	46
2-371.2	Atabrine	5
2-371.5	Fagarine	2
2-371.8	Emetine	7
2-372	Strychnine, Curare	1
2-374	Aconitine, Sparteine	5
2-375	Pilocarpine	0
2-375.5	Veratrine	25
2-375.6	Viscum Album	1
2-376	Caffeine, Theobromine, Theophylline Physostigmine (see 2-584.3)	17
2-381	Snake and Spider Venom	2
2-383	Food Poisoning	0
2-390	Allergic Reactions; Histamine	36
2-395	Antihistaminics	20
2-400	CARDIOVASCULAR INFLUENCE OF PHYSICAL AGENTS	
2-400.1	Physical Therapy (General)	4
2-400.3	Acceleration (Gravity)	12

2-400.4	Posture	41
2-400.5	General Body Trauma, Traumatic Shock	23
2-400.6	Operations (General Surgery)	4
2-400.7	Ischemic Compression Shock	9
2-400.8	Hemorrhagic Shock	33
2-410	Cardiac Trauma	37
2-440	Temperature (General)	12
2-444	Burns	3
2-445	Hyperthermia and Fever	26
2-447	Hypothermia (incl. Freezing)	56
2-450	Light and Ultraviolet	0
2-460	Electricity (Electrocution, lightning, direct action)	2
2-462	Electro-shock	11
2-470	Effect of Roentgen Rays	5
2-480	Low Atmospheric Pressure	42
2-490	High Atmospheric Pressure	1
2-5	AUTONOMIC NERVOUS SYSTEM (see also 1-900)	
2-582	Sympathetic Stimulation (Sympathectomy, see 1-460.25)	37
2-582.1	Epinephrine	141
2-582.2	Other Sympathomimetic Amines	39
2-582.3	Sympathicolytica & Adrenolytica (Gen. & unclassified)	14
2-582.4	Regitine	7
2-582.5	Benzodioxanes (933F, Benodaine)	5
2-582.6	Dibenamine, Dibenzyline	13
2-582.65	Priscoline	2
2-582.7	Ergot Drugs	39
2-582.8	Tetra-Ethyl-Ammonium, Pendiomide	52
2-582.9	Hexamethonium (Apresoline)	50
2-584	Parasympathetic (Vagal) Stimulation	36
2-584.1	Carotid Sinus Reflex and Syndrome	51
2-584.2	Acetyl Choline (Muscarine, Pilocarpine) (see 2-375)	51
2-584.3	Prostigmine	7
2-584.5	Atropine and other Parasympathicolytics	14
2-7	DISORDERS OF THE METABOLISM	
2-700	Effect of Meals	10
2-701	Malnutrition & Starvation (see also 1-430.98)	16
2-704	Anoxia (see also 2-480)	105
2-704.5	Oxygen in high concentrations	10
2-721	Acidosis	19
2-722	Alkalosis	6
2-730	Calcium Metabolism	19
2-731	Magnesium, etc.	6
2-736	Electrolytes (General)	15
2-737	Sodium Metabolism	32
2-738	Potassium Metabolism	94
2-751	Glycogen Storage disease and carboydrates metabolism	1
2-753	Obesity and other disturbances of lipid metabolism	3
2-755	Glycogenosis	2

2-759	Water Metabolism (edema, diuretics) (see also 3-605)	74
2-759.5	Osmotic Effects (Hypertonicity, hypotonicity)	10
2-761	Vitamin A	2
2-762	Vitamin B Group	21
2-763	Vitamin C	0
2-764	Vitamin D (see also 2-730)	0
2-765	Vitamin E	18
2-766	Vitamin K	0
2-800	NEOPLASMS OF THE HEART: INFLUENCE OF NEOPLASMS ON THE HEART	46
2-922	Amyloidosis	8
3-	BLOOD FLOW AND COMPOSITION (Digits are arbitrary)	
3-100	Thrombosis (Mechanism)	59
3-105	Anticoagulants (Anticoagulant therapy of coronary thrombosis, see also 1-41x.211)	65
3-110	Venous Thrombosis (Thrombophlebitis)	36
3-120	Embolism, systemic	29
3-125	Embolism, pulmonary	72
3-200	Blood gases (incl. oximetry)	51
3-300	Blood volume	92
3-400	Heart Output (chemical methods of determination)	48
3-450	Heart Output (physical methods)	23
3-500	Hemodynamics; Arterial Pulse	72
3-600	Cardiodynamics	58
3-605	Heart Failure (see also 2-759)	84
3-700	Cardiovascular Catheterization (see also 2-476, 2-0-400.4)	38
3-800	Blood Velocity (Circulation Time; Radiocardiography)	25
3-900	Mechanical Heart-Lung	34
4-	ARTERIAL BLOOD PRESSURE (Digits are arbitrary)	
4-100	Methods of Measurement	60
4-110	Normal Range	12
4-120	Physiology (General)	38
4-2	*Hypertension*	
4-200	Hypertension, General Pathogenesis	126
4-210	Hypertension and Heart	28
4-220	Hypertension and Nervous System (incl. Psyche)	22
4-221	Hypertension and Brain	17
4-222	Hypertension and Eyes	10
4-230	Hypertension and Kidney	125
4-240	Hypertension and Gonads (incl. Pregnancy)	14
4-250	Hypertension and Adrenal Medulla (incl. Sympathin)	1
4-260	Hypertension and Adrenal Cortex	24
4-270	Hypertension and Pituitary	4
4-290	General Treatment of Hypertension (incl. drugs)	124
4-291	Dietary Treatment of Hypertension	20
4-292	Surgical Treatment of Hypertension	69
4-300	*Hypotension* (see also 2-400)	14
4-310	Shock	21

5-	CARDIAC MOTION (Digits are arbitrary)	
5-100	Roentgen Kymography	14
5-150	Electrokymogram (Fluorocardiogram)	68
5-200	Dielectrogram (Short Wave Kymogram)	0
5-300	Cardiogram (Apex Beat—incl. Kinetocardiogram)	8
5-350	Esophago-Cardiogram	2
5-400	Pneumo-Cardiogram	4
5-500	Phlebogram (Venous Pulse)	2
	Arterial Pulse, see 3-500	
	Intracardiac Pulse, see 3-600	
5-600	Rheocardiography; "Capacigraph"	3
	Radiocardiogram, see 3-800	
6-	CARDIAC VIBRATION (Digits are arbitrary)	
6-100	Ballistocardiogram	127
6-200	Auscultation, Stethoscopes	0
6-210	Production of Murmurs	15
6-220	Phonocardiogram (General)	49
6-221	Normal Sounds	16
6-223	Extra Sounds	19
6-225	Murmurs	30
6-290	Arterial Sounds	5
7-	ELECTROCARDIOGRAPHY (Digits are arbitrary)	
7-000	Electrocardiography (General)	60
7-010	Electrocardiographic Instruments, incl. artifacts	49
7-020.0	Genesis of Bioelectrical Potentials	5
7-020.1	Electrogram of Plant Cells	6
7-020.2	Electrogram of Nerve Cells	14
7-020.3	Electrogram of Smooth Muscle Cells	0
7-020.4	Electrogram of Skeletal Muscle Cells	21
7-021	Intracellular Electrocardiograms	26
7-022	Monophasic Action Potential	43
7-023	Electrogram of Isolated Cardiac Muscle	5
7-024	Direct Leads from Heart (incl. Activation Studies)	31
7-030	Electrocardiograms of Animals (Normal Range)	52
7-040	Theory of Leads; Conductivity	90
7-050	Intracardiac Leads	32
7-060	Esophageal Leads	27
7-065	Bronchial Leads	1
7-070	Precordial Leads and Unipolar Limb Leads	102
7-080	Vectorcardiogram	126
7-110	P-Wave Patterns	23
7-120	QRS Patterns	35
7-130	S-T Patterns	15
7-140	T-Wave Patterns	60
7-150	Q-T Duration	71
7-160	Ventricular Gradient	12
7-170	U-Wave	18

7-210	Variability of the Electrocardiogram	8
7-220	Electrocardiogram in Children	48
7-221	Electrocardiogram in Old Age	14
7-230	Heart Position and Electrocardiogram	39
7-300	Low Voltage	4
7-400	Effect of Hypertrophy on the ECG (see also 1-430.93)	47
7-500	Alternation	9
7-850	Terminal Electrocardiogram	5
8-	ARRHYTHMIAS (Digits are arbitrary)	
8-000	Arrhythmias (General)	30
8-100	*Rhythmicity, Automatism, Excitability*	25
8-104	Stimulators	0
8-105	Cardiotachometers	11
8-110	Sinus Rhythm (Physiology)	9
8-111	Sinus Tachycardia	2
8-112	Sinus Bradycardia	7
8 113	Sinus Arrhythmias	7
8-114	Sinus Extra-Systoles	1
8-121	Atrial Extra-Systoles and Paroxysmal Tachycardia	26
8-122	Atrial (auricular) Flutter	46
8-123	Atrial Fibrillation	75
8-130	"Supraventricular" Extra-Systoles and Tachycardia	31
8-131	A-V Nodal Rhythms	19
8-141	Ventricular Extra-Systoles and Ectopic Rhythms	100
8-143	Wolff-Parkinson-White Syndrome	62
8-145	Ventricular Fibrillation	65
8-200	*Conduction* (Physiology)	13
8-210	Sino-Atrial Book	8
8-220	Intra-auricular (Intra-atrial) Block	2
8-230	Atrio-Ventricular Conduction (P-R Interval) General	23
8-231	Atrio-Ventricular Block (Incl. Stokes-Adams)	69
8-235	A-V Conduction, Retrograde (Incl. Reciprocal Rhythm)	3
8-240	Intraventricular Block	104
8-500	*Cardiac Resuscitation*	69

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Research Libraries in 1955*

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I SHOULD begin this talk by admitting frankly that my knowledge of medicine and medical literature is a minus quantity. At the same time I *can* claim some little acquaintance with the Armed Forces Medical Library. I had an opportunity to study its problems in detail twelve years ago. Since then I have seen enough of the Library to appreciate the tremendous progress that it has made. In the past few months I have been trying to help in connection with plans for a new building and so have been a little closer to the Library than in the years just before. But I still know next to nothing of the literature included in the collections and that should be kept in mind as I talk. However, I have had a full fifty years in library work and I am inclined to believe that there is at least a family resemblance in the problems in large libraries even when they deal with subjects as different as the clinical medical sciences and the humanities.

I am going to talk about general library problems and then when I think that these problems relate in some way to those of a great medical library, I shall so state and shall hope "to point a moral" or at least to explain the situation in regard to the problem as I see it in the Armed Forces Medical Library.

Research Libraries in 1955 is a pretty big subject for a half hour talk and it might be described better as *Some* Research Library Problems in 1955. I have been accused of over emphasizing *problems* in my approach to libraries and am sometimes spoken of as a pessimist. I deny that and take the attitude that if you face problems squarely they tend to disappear or to become less of a threat. At any rate I shall talk primarily about problems.

Many library problems have their roots in the fact that libraries grow and tend to grow at a greater rate than most of the other things with which we deal. We are all acquainted with growth in the human body, in the size of our educational institutions, and in many other things. All of us started our lives with very rapid growth, but the rate of growth soon began to slow down and by the time we were in our late teens it was over with except for a little extra weight that some of us added in the years that followed. But our libraries seem to follow a different pattern. They grow very rapidly when first founded

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and then they keep on growing. Fremont Rider, the retired librarian of Wesleyan University, made a careful study of this problem, as did Dartmouth's mathematics professor, Charles N. Haskins. Both found that research libraries apparently continue to grow year after year and decade after decade often at a rate of about 4% a year, compounded year by year. This resulted in a doubling in less than twenty years, and seemed to be true for libraries of any size. Age seemed to have very little to do with it. It was just as true of the Library of Congress which now has ten million volumes and is still growing at the 4% rate as with a special library in a limited subject field. Well what of it, you may say. Is it serious, if a library grows from 50,000 to 100,000 volumes in 18 to 20 years? Even those of us connected with one of the larger libraries may not get worried when the doubling continues and the 500,000 volume library becomes one of a million in 20 years. But supposing you were in charge of the Library of Congress and had to look forward to 20 million volumes instead of ten in the next two decades; to 40 million 20 years after that and then to 80 and 160 in the following 20 year periods and 320 million a century from now? The books alone by that time would fill five Pentagon buildings leaving no space for staff, readers, or catalog. Personally I do not believe that this rate of growth will continue. The libraries that are still doubling every 18 to 20 years are in their infancy or at least in the adolescent stage, whether they be the Library of Congress or the Armed Forces Medical Library. Give them time and they will grow up. The Library of Congress is much younger than the Library of Harvard University, for instance, in actual years of life and in other ways. The Library at Harvard as a research library is only 100 years old at most, not 317 years as we like to claim, and its rate of growth is tapering off. The Library of Congress is only 90 years old as a research library and was a general research library in a limited way only, during most of that period. As a National Library covering all fields it is only a little over 15 years old. No wonder it is still growing too fast.

What does all this have to do with the Armed Forces Medical Library? A good deal in my opinion. There is some dispute as to just when this Library actually got its start, but it must be admitted that under John Shaw Billings it became a very great medical library. However, it then fell on evil days and on its present basis as a modern almost inclusive medical research library it might be said to be very little over 10 years old. It is still in its infancy and can be expected to grow at a frighteningly rapid rate for some time to come while it catches up with itself. But after that, while it may and should continue to add as many or more volumes year by year as it does now, its rate of growth will probably decline steadily percentagewise. I cannot emphasize too much the importance of this rate of growth factor in making plans for the new building which we are all looking forward to. If the Library is to grow 20,000 volumes annually for the next century it is a very different thing from growing at 4%

each year for that time. The former would mean a 2½ million volume library in 2050, the latter would mean 16 million by that time. I am not going to try to prophesy this evening what the future rate of growth will be, but I can say without hesitation that growth is basic to every other problem with which libraries and librarians struggle. The plans for the new building are conservative in my opinion and on the 20,000 volume not on the 4% basis of growth.

There are many other library problems with most of which you are already more or less acquainted. I am going to venture to talk about nine of them making with this growth problem, ten in all. Each of the ten is dependent on one or more of the others. It might be said that they are all interdependent. And when I speak of one of them, please remember that the others must also be kept in mind or the whole picture will be distorted. Let me just name them over briefly and then I shall go along in ministerial fashion with my secondly, thirdly, and so on.

2) The acquisition program, to which should be added what in many ways is just as important, discarding policies.

3) Cataloging.

4) The care of the collections acquired and cataloged.

5) The service of the collections in the Library and throughout the country.

6) The relation of the Library to other libraries.

7) Administrative organization.

8) Staff and personnel.

9) Finances.

10) Building and space problems.

We shall consider these as general library problems one by one, but briefly I can assure you, and then try to relate them to the situation in the Library in which we are particularly interested today.

Acquisition and discarding policies. No one can deny the basic quality of this problem. If we do not acquire books we do not have to catalog them, care for them, serve them, or provide a staff and a building for them. Every library that is doing a good job considers that the determination of its acquisition policy is of first importance and something that it does not do as well as it should. At Harvard I am all too sure that we have not done well in this regard and it is one of my greatest regrets in looking back on my career there that I failed to outline successfully, a policy in detail; this in spite of many hours spent on the task. Colonel Rogers realizes as well as anyone the need for careful consideration of this problem and he has been at work for a considerable period trying to put it down in black and white. He is making arrangements for a symposium scheduled for next spring to struggle with the problem in the hope that from it will come some clarification of the issues involved. I leave for that symposium further consideration of this subject. But I will go on now and add that a policy for discarding or "weeding" may be of equal im-

portance to an acquisition policy. Let me just mention one phase of this problem. In the next century a considerable percentage of the books and pamphlets acquired during the past 80 years will have disintegrated or will be far enough on the road to disintegration so that it will be inevitable that they will not survive. What do you do about it? Do you just throw the books away when they are worn out or do you attempt to replace them in some way, by a new copy—also on poor paper—or by reprinting or by reproducing by photography?

Our third problem is cataloging. Why is *this* a problem? We can agree that we must keep what some of us call bibliographical control of the materials that we acquire; that is, must list the books and pamphlets in a catalog, and classify and assign subject headings to them so that we can find what we want by subject if we do not know the author. But what are the special difficulties here? They go back to two facts. The first is cost. We spend more money on this part of our work than on any other. And, second, we tend to disagree as to the detail with which we should catalog. Let me let you in for a moment on one of our library skeletons. Men and women who enter library work as a profession have on the average more than their share of perfectionism in them. It is these persons who are ready and willing to spend their lives cataloging. They are anxious to do the best possible job. A very good job is required. If a sloppy one is done the work is wasted. The difficulty arises from the fact that these fine men and women who do the first class job that is required, tend sooner or later, human nature being what it is, to come to think of their work not as a means to an end but an end in itself and then they forget that there may be a limit to the time that the library should afford to spend on discovering the author's middle name or birth date or one of the thousand other things that may be useful but not essential on a catalog card. This applies to the Armed Forces Medical Library just as it does to Harvard or any other library.

In a national library in a subject field, such as the Armed Forces Medical Library, which does the basic cataloging for many other libraries there is far more excuse for doing a perfectionist job than elsewhere. Many of you know some of the vicissitudes through which your cataloging and indexing has gone in the past generation and I do not need to dwell on it further, but to assure you that you must not forget about the importance and the cost of cataloging.

Problem four deals with the care of collections; the housekeeping aspects of library work. Any of us can own a good house, buy good food, and have good furniture, but unless we take good physical care of these possessions we will be in trouble sooner or later. It is the same with a library. A small public library catering to recreational reading, a college library dealing primarily with undergraduates may, even if it hates to admit it, consider its collections as expendable and not worry too much when something happens to them. But Harvard, the Library of Congress, and the Armed Forces Medical Library do

and should think of their books as part of the permanent record of our civilization, and as material that must be kept indefinitely. If these books are to be kept so, they must be kept in good physical condition and in good order so that readers can find what they want when they want it. Binding and rebinding is terribly expensive and perhaps it is not treason to remark that Government Printing Office binding is more expensive with very few exceptions than that done elsewhere and the Armed Forces Medical Library has faced a special problem in this connection. But binding is not the only important point in the care of the collection. A building such as that on Independence Avenue is far from being suitable for a library that is largely irreplaceable. There is danger from fire and water, and dirt, from dryness in the winter and dampness in the summer. New quarters can easily and properly be described as a "must." Crowded conditions also make it difficult to keep books in order and makes every handling of them a danger to their life expectancy.

Problem five deals with service. No librarian in his right mind today—contrary to past practice, perhaps—would think of buying, cataloging, and caring for books unless he planned to make them available to those for whom they have been gathered together. In a National Library they may be considered as having been gathered for use by any reputable citizen of these United States. Books that have been acquired, and cataloged, and cared for properly should be readily and easily available. To make this possible a well organized service staff and satisfactory quarters are required.

There are no special problems in this connection for the Armed Forces Medical Library except that as a National Library the collection must be available not only here in Washington but throughout the country; if not the books themselves, photocopies of them. The percentage of the use of the collection by persons outside the library building is perhaps greater than that for any other library anywhere. This is largely due to three facts. It is the National Medical Library; a large proportion of the books cannot be found anywhere else; the number of medical researchers in Washington is not great in relation to the size and total use of the Library.

This leads us to our sixth problem: Relationship with other libraries. In spite of the tremendous growth in the country's great research libraries, we have come to realize in recent years that no one library, not even a National Library with Federal funds behind it, can build inclusive collections in all fields. We have also, fortunately for our peace of mind, realized that even if it could do so it would not make sense. By the time a general research library reaches a million volumes, it finds that a growing percentage of its collections are very little used. It finally occurred to librarians that unnecessary duplication of little used material among libraries—take for example, the acquisition of files in ten different libraries of an obscure, local history periodical from provincial France—results in the expenditure of funds that could be used to better

advantage in other ways. I am speaking now of general libraries, not those that cover a special field only. This unnecessary duplication runs up the prices of material to absurd heights and it also results in crowded buildings. We are gradually learning to avoid excesses of this kind, through formal as well as informal agreements. The Farmington Plan for Cooperative Acquisition is a long step in the right direction. The Armed Forces Medical Library has taken a very important part in this operation, and has assumed responsibility for the whole field of clinical medicine. Since this represents a large part of the field in which it is interested it does not relieve the Armed Forces Medical Library financially or service wise as it does some other libraries. Speaking of service, it must not be forgotten that when there is a division of field in acquisition that there must of necessity be a similar division of field in service. This involves service on a large scale to visiting scholars, by photographic reproductions of one kind or another, and by interlibrary loan. The amount of service in each of these three bids fair to increase rapidly in the years ahead. In some cases this increase will result in pressure to charge for it. When endowed or tuition supported institutions are involved, fees for interlibrary use seem logical and can be defended because otherwise the funds required to support the service must automatically be subtracted from those available for the regular clientele of the institution. The Armed Forces Medical Library is neither an endowed nor tuition receiving organization and while it may charge for photoreproductions for persons with no connection with the Defense Department, it cannot very well charge for other types of use even by persons not connected with the government. At any rate it should be remembered that in spite of the present large amount of use of this kind at the Armed Forces Medical Library, it will tend to grow rapidly in the years to come.

Administrative Organization, our seventh topic, has a good deal to do with the efficiency of library operations. Librarians have, unfortunately, had a reputation in certain quarters for being uninterested in economy. Personally I believe this reputation is, on the whole, unfair. However, it is not unnatural that a profession that recruits its personnel almost exclusively from the ranks of booklovers should have underemphasized the need for carefully scrutinizing the costs in what has become in recent years big business.

In the case of the Armed Forces Medical Library the greatest step forward in administration came less than a decade ago when the Surgeon General's Office of the Army decided that the direction of the Library should be a career job. If this decision stands, as I hope it will—and I believe that the group in this room has a large part of the responsibility for making it stand—this particular battle should be won.

But even the well-organized library cannot operate without an adequate staff, one that is adequate both qualitatively and quantitatively; so this prob-

lem of personnel is our eighth one. And a very serious one it is, in these days of "full employment." When I went into library work fifty years ago it was one of the few types of employment that an educated woman from a middle or upper economic class family could enter without embarrassment. As a result there was no difficulty in recruiting young women with a satisfactory background for library work at low salaries. That time has past. Today the pick of our female college graduates, whom we should like to entice into library work, have the world at their feet and hesitate to enter the library profession. This has very naturally, and I might add properly, resulted in greatly increased wage scales with which it has not been easy for libraries with limited funds to deal.

Fortunately the Armed Forces Medical Library has not had as difficult a time recently in this respect as some endowed institutions, and it is a comforting feeling to have the tax supported Uncle Sam behind it. But I must add that even so, to build up and to hold together the staff of the Library has not been an easy matter and I am sure Colonel Rogers realizes it is still a major problem.

This brings us logically to the ninth of our ten problems: Finances. All the problems already discussed are complicated if adequate financial support is not forthcoming.

An acquisition program, particularly a fairly inclusive one in an important subject field, with an unusually large number of serial and periodical publications, as is the case in medicine, demands today for support a sum which at the beginning of the century would have been unthinkable and unbelievable. To catalog this material in such a way as to provide ready access to it by scholars and professional men, costs with today's salary scales in most large libraries more than its purchase price. In a National Library such as this one where cataloging is supposed to be definitive in character and quality and where it has been customary to analyse by author and subject periodical articles as well as monographs, the cost involved becomes inevitably very high.

I am sure you do not need to be convinced of the fact that library budgets are not matters that can be casually ignored. There are many libraries in the country including this one that spend over a million dollars a year and the end is not yet. The Armed Forces Medical Library has not been badly starved financially in recent years, but some of you have memories long enough to recall that there was a year in the early 1930's when book funds permitted it to purchase only 14 books in one long fiscal year. My greatest fear for the future of this Library is that if real peace ever coincides with a serious depression and the Defense Department of the United States is under pressure to economize, there will be persons in the higher echelons of the service or in Congress, who are not particularly impressed with the importance of medical knowledge and research. They may fail to understand, as was the case 20 years ago, that this is a National Library with primary responsibility for the availability and diffusion of medical knowledge for the whole country. These persons in their

position of authority may, in their ignorance, bring about a large scale reduction in the Library's budget without realizing or comprehending that such a budget cannot safely be turned on and off like a spigot, without untoward and in the long run disastrous results that can never be completely overcome. Would it be fair to say that this body here assembled has a direct responsibility to prevent this gloomy picture from becoming an actuality? As far as I know there is no other group that can be counted upon to perform this task satisfactorily. Librarians cannot, for they are interested parties financially.

One final word on the Finances of this Library. Unless this group is in a position to defend the Library successfully against budget cuts that may result from a failure by those in authority to understand the importance of this Library, I suggest that that fact provides the principal excuse that I can think of for the transfer of the Library to some other branch of the Government.

Building and Space Use Problems. I have left this to the last, not because it is unimportant but in order to emphasize it. It might otherwise have followed my first problem, growth, because the two are so intimately connected. Libraries use large amounts of space. At Harvard the Libraries occupy approximately 10% of the total building plant of the University. The Library of Congress in its two buildings has some 20,000,000 cubic feet of space with a replacement value of $50,000,000, leaving out the elaborate decorations.

The space in library buildings is used for four things if we exclude the corridors and building services: monumental purposes, staff, accommodations for readers, and for shelving books.

In many of our older buildings the first of these four, monumental purposes, takes the biggest percentage of the total; as much as half in some unfortunate buildings. The second, space for staff, is the smallest in most libraries, but alas, the one that generally becomes inadequate soonest, due to the innate modesty of librarians with responsibility for planning. The third, space for readers, has been the largest in most well planned libraries and perhaps the most difficult to plan for, as no satisfactory formula has ever been discovered with which to determine the peak load for readers. One of the reasons for this is the well known fact that an improvment in service and accommodations increases demands. I should go on and say that in libraries—contrary to what is true in business—the increased demands do not ordinarily bring the increased income required to make possible the continuation of the improved service. Last but not least is space for books. In recent years the growth of our great research libraries has, for the first time, made the space needed for bookshelving the largest of the four.

But enough of these details. The total cost of providing for the space demands in a great research library in this day of high construction charges is so great that a new central building for Harvard, for instance, if we add to the construction costs the endowment, the income of which will care for the upkeep charges of the building, would amount to some $25,000,000. That means

that every year the new building can be postponed, the interest on that sum is saved. Since it amounts to $1,250,000 annually, a 20 year delay would save $25,000,000 even if we leave out the interest on interest. This is the best way I can think of to show what new building costs add up to today.

But let me shift now to the Armed Forces Medical Library and its building problem. I have just emphasized the magnitude of building costs. I believe that because of them new library buildings should be postponed if possible. But in this case I do not hesitate a moment to say that the time has come, indeed is long past, when a new building is indicated and that postponement is no longer an economy.

The building on Independence Avenue is one of the three large research library buildings in the United States that date well back into the 19th century and are still in use. Cornell and the University of Pennsylvania have the other two. I have had the opportunity to study each of the three. Thanks to John Shaw Billings your library building was far superior to either of the others in its planning. But, it is no longer suitable for use in size or in type of accommodations in spite of that fact. A new building as I have already stated is a "must." Its location has been a matter for discussion for many years. At one time I strongly urged that it be placed "On the Hill" near the Library of Congress, for which it might be said to be the most important supplement among the many, many Federal Libraries. If there is still danger that the Library's sponsor will lose interest in the Library, a location near the Library of Congress should still be considered. But if the Library's financial future can be considered reasonably secure, the proposed site in Bethesda is desirable for three important reasons:

1) Bethesda with the Naval Medical Research Institute and the National Institutes of Health is the logical center for Government supported research in the Medical Field.

2) It is in line with the Government's policy of decentralization, and

3) With the rapidly increasing use of microphotography and the comparatively small percentage of the total use of the Library taking place under its own roof, a location in the city has lost the importance that it had earlier.

In my considered opinion, the most important thing is to get the building, delaying only long enough to be sure that it is as well planned as possible. Commander Oley has done the best job of detailed preliminary planning for a research library that I have ever seen. If a suitable architect is secured, I am confident you can count on Colonel Rogers and his staff to see to it that an unusually satisfactory building is the result. My final word to you today is that it is time for all of us to get together and do what we can to give the building project the boost that it needs. I have great hopes for and confidence in the future of what I consider is in fact, if not in name, the National Medical Library.

A Galaxy of Old Japanese Medical Books With Miscellaneous Notes on Early Medicine in Japan

Part IV. Ophthalmology, Psychiary, Dentistry.*

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An historical sketch of Japanese ophthalmology was given by Asobu or Yū FUJIKAWA in his work the *Nihon ganka ryakushi*, which was published in one volume in 1899. But a more complete account of the history of ophthalmology in Japan[1] was presented in a one-volume work by Kenzaburō OGAWA entitled *Kōhon nihon gankagaku-shi*, published at Tōkyō in 1904.

The contents of OGAWA's work can be set forth as follows: ancient ophthalmology, before the time of the Emperor Jimmu, and afterward; the description of a "dark glass"[2] of the Stone Age in Japan; the introduction of Korean and Chinese medicine, with a description of ophthalmology in China during the Tō period ("applicator sticks," made of silver, for applying medicines to the eye are illustrated); ophthalmology of later times in China and India; the history of ophthalmology in the "lower part" (= latter part) of ancient times, and during the "middle ages" in Japan, with an account of the first Japanese specialist in ophthalmology, (Taisōzu) Seigan MAJIMA, who lived about 1379 A.D.[3]; ophthalmology as taught by the recognized "schools"

* Previous parts in this series were printed in the BULLETIN, 42: 287–327, 468–500, 1954; 44: 125–159, 1956.

[1] Reference should also be made to a paper on the origin of Japanese ophthalmology and the beginning of Dutch study in Japan, by Jujirō KAWAMOTO entitled "Nihon ganka-no-yurai oyobi nihon ni okeru rangaku-no-hongen ni tsu ki" (*Nihon Ganka Gakuwai Zasshi*, 4: 184–214, 327–364, 1900).

[2] These were devices for the protection of the eyes by keeping excessive light out, and appear to have been not dissimilar to the modern darkened slit-lenses commonly used by explorers in snowy wastes. The Japanese "dark glass" was discovered on clay burial figures unearthed in the northern part of Japan, although the custom was known all over the country. An illustration of such a figure is shown in Plate I-A.

[3] Names and dates may seem to be a bit confused, but one account of the beginning of ophthalmic science in Japan is interesting: in FUJIKAWA's *Nihon igaku-shi* (1941) it is related that one Seigan MAJIMA, a Buddhistic priest at the beginning of the Heian period (784–1186 A.D.) during the reign of the Emperor Kanbu, was known for re-establishing the

of that period—the MAJIMA, the YAMAGUCHI, the HASHIMOTO, and, later, by the Dutch; ophthalmology in the Tokugawa era, including the introduction of Western ophthalmology[4]; the "official" ophthalmologists of the successive Tokugawa shōgunates; and, finally, the modern period beginning with the Meiji restoration in 1868.

The illustrations in *Kōhon nihon gankagaku-shi* are extremely interesting, and the following are to be especially noted: a diagram of the eye, of Chinese origin, showing the structural relationship of the eye to the internal organs (the "situation" of the viscera was first determined, then the eyes were treated); a diagram of the "right spots" for the use of moxa and acupuncture in the treatment of eye diseases; sketches of eyes suffering from cataract (reproduced from the *Ganka zensho*); sketches of the stages in the operation for cataract as practiced by the MAJIMA school; sketch of an eye showing hyperemia around the cornea; and drawings of ophthalmological instruments copied from originals made by (Shonin) Ennyo MAJIMA.[5]

The first writing in Japan of an ophthalmological nature appeared in the important codex, the *Taihō ryō* (702 A.D.), which regulated by governmental edict the practice of the medical arts in general. After that time, during a period which roughly corresponded to the "middle ages" in Japan, of the eleven Chinese works on ophthalmology extant at that time three works were used in the ophthalmological practice of Japanese physicians: the *Ryūju bosatsu ganron* (n.d.) by an unknown author; the *Ginkai seibi* (*or seichi*), a two-volume work by an unknown author and of unknown date;[6] and the *Ganka zensho*, a Chinese manual of diseases of the eye, written by AI Gakuen and published at Kyōto in three volumes in 1688 and again in 1791. Those works included therapeutics, operations, and the use of moxa in ocular disorders. The MAJIMA school of ophthalmology which flourished during that time (and, indeed, was important at least to the end of the Edo period) taught anatomy and pathology of the eye and therapy through drugs and operations.

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healing fame of the Iwozan Yakushi-ji Temple. In a dream a "foreigner" gave him a strange book, a book on ophthalmology. He tried the recipes for treatment and found them startingly effective. Afterward the name of MAJIMA Ganka (eye clinic) became famous all over Japan—thus the beginning of Japanese ophthalmology.

[4] Principally through the writings of Joseph Jakob von Plenck, followed by the influence of Philipp Franz von Siebold, and the establishment of a school known as the "Nagasaki seitoku-kan" which attracted Antonius F. Bauduin as a teacher in 1860. Of interest was the "Kōkoku iho," which was a theory or belief or tendency or school of Japanese medicine *opposed* to Western influences.

[5] Among the followers of the MAJIMA school of ophthalmology it is to be noted that Enkai (or Ennyo?) MAJIMA was particularly famous for his techniques, but he apparently wrote no books.

[6] The *Ginkai seibi* was a specific work on ophthalmology. Although of unknown authorship and date, it has been attributed to SON Shibo who lived during the Tung dynasty in China. The original author's name may be considered to have been "lost," and there is reason to believe that this was the same work that later appeared in Japan in 1793 as the *Naifu hiden ganka ginkai seibi*.

That knowledge was promulgated by means of 24 "books," which were in reality secret writings transmitted by word of mouth (i.e. parts of which were spoken of, read, or dictated to others, but not allowed to be seen or copied in their entirety).

A few Japanese works on ophthalmology are mentioned by FUJIKAWA as having been composed during the Azuchi-Momoyama period (1569–1615). The earliest of these was published in 1585 in one volume, presumably by a later "Seigan MAJIMA," with the title *Kinei-roku*. Like the INOUYE family of modern Japan, the MAJIMA family of that early period appear to have been ophthalmologists of note, three other members of the family having also written books on diseases of the eyes. One of those books, a one-volume work known as *Majima-ryū ganka* (1596) by Taichibo MAJIMA, was noteworthy for its explanation of the ophthalmology of the MAJIMA school. Later on, Taichibo MAJIMA is presumed to have written five books of unknown date but which described the further development of ophthalmological techniques by the MAJIMA school during the early Edo period. Those books were known by the titles *Majima-ryū ganyaku hisho*, *Majima Taichibo hisho*, *Majima myoganin ganyaku*, *Gammoku-zu* and *Majima kanko shokyō*. A three-volume work by an unknown author and of uncertain date, but composed during that same period, with the title *Namban-ryū mokuishū* described the ophthalmological teachings of the Portuguese school (the school of the "Southern Barbarians"). Also of that period was a work entitled *Naishō ichiryū yōjōtekiden kagami* by Dōhon YAMAGUCHI, specifically on the treatment of cataract.

A unique manuscript on ophthalmology written during the period 1567–1615 by an unknown Japanese physician of the Sanemon Sango school was one of the prized "discoveries" of the writer while he was in Tōkyō. Bearing the title *Gammoku hisho*, that manuscript is another example of the "secret books" of that period in Japan, and is a valuable source of information on the treatment of diseases and pathological conditions of the eye as practiced in Japan before the influence of European medicine (ophthalmology) was felt. The illustrations in that old manuscript were original paintings of eyes, the colors of which are remarkably well-preserved to this day (except that the original browns of the iris have faded to shades of green). Some of the pathological conditions represented in those old paintings were as follows: ptosis of the iris (treated with *hokan-san*, a medicine to drink, or by washing the eye with *shinju-san*[7]); pain in the iris (treated with a mixture of *senkan-ko* and *shinju-san*); a condition described as "red and itchy around iris" (treated with *shikin-san*); for "film over [the] eye, [the] patient can only see as through a

[7] It is possible that this medicine *may* have been equivalent to that referred to by Albert S. Ashmead as "shinsen," known in Japan as "the Heavenly Mountain Spirit" and composed of myrrh, dragon's blood, musk, cinnabar, inula-helinum, and liquorice. Because of its mercurial nature, such a medicine was also used in olden time in Japan for the treatment of syphilis.

veil" (treated with *hokan-san* by mouth and *tanju-san* applied to the eye); if "eye suffers from bad blood" (treated with *tanju-san* and *hokan-san*). Continuing the descriptions of ocular pathology, a condition was described and portrayed (Plate I-B) in which very small warts appeared on the sclera (treated with *shinju-san*—but it was stated that "very few people can be cured of this condition, cures being possible *only* if the right *or* the left eye is affected; if *both* eyes are involved 'even the gods cannot cure' "); for a small wart on the pupil of the eye (treated by using a needle—acupuncture?[8]—but the technique was not described[9]); conditions were pictured in which the pupil was malformed, or in which the iris "has something white or sometimes yellow or blue in it" (for example, "if iris is becoming yellow [the] disease comes from the heart," but no treatments were given and it was stated that such conditions could not be cured); a condition was described in which the iris becomes red (from an associated stomach disease), the pupil is "dry" and vision is weak (that condition was very hard to cure, and no specific treatment was mentioned); and finally, a painful disease of the eye which "comes from the kidneys, and cannot be cured."

The remaining leaves of this old Japanese manuscript gave prescriptions which the unknown physician who composed it had used for the treatment of various eye diseases, comprising powdered medicines, ointments, and eye washes. Later on in the *Gammoku hisho* other prescriptions were given for certain non-ophthalmological conditions. Specifically mentioned were medicines for arthritic foot, jaundice, and stomach disorders. Of special interest was a prescription for a pill to promote long life, described as "an expensive

[8] Attention should be called to an interesting picture of the use of acupuncture in the "treatment" of eye diseases in old Japan, reproduced as one of the illustrations in the paper by Ilza Veith entitled "Medicine in Japan" (*Ciba Symposia*, 11:1190–1220, 1950, p. 1199). The original of that picture was one of the paintings in the famous collection known as the *Yamai-no sōshi* (12th or 13th cent. A.D.), which have been copied and reproduced many times in various "editions."

[9] Since writings such as this were "secret," for the use only of a particular physician or his immediate family, many of the notations were in the nature of personal reminders or hints of treatments and were not necessarily intended to give complete detailed instructions for the knowledge of others who might chance to read the writings.

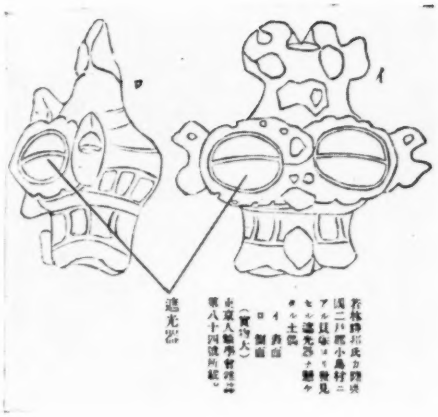
PLATE I

FIG. A. "Dark glasses" on an ancient clay burial figure of the Stone Age in Japan, reproduced from a drawing in the *Kōhon nihon gankagaku-shi* (1904).

FIG. B. A leaf from an early Japanese manuscript on ophthalmology known as the *Gammoku hisho* (Azuchi-Momoyama period, 1569–1615).

FIG. C. Classical Chinese conception of the structure of the eye, from the *Naifu hiden ganka ginkai seibi* (1793).

FIG. D. Treatment of ocular diseases with the use of cautery irons, from the *Zoku ganka kinnō* (1837).



A

B

C

D

kind because so many medicines are needed to make them," and a prescription for a pill that "tastes and smells good, and is good for [anything]."

The Tokugawa or Edo period saw the gradual development in Japan of ophthalmology from Chinese learning through its combination with early Dutch teachings to the absorption (with acculturation) of Western ophthalmological knowledge and practices. The first formal Japanese book on ophthalmology was written in five volumes and published in 1689 with the title *Gammoku meikan*, on the treatment of eye diseases by using drugs, by an author not fully identified but who was known by the pen-name of "Kyōrinan." The anatomy of the eyeball was first deduced from operations for cataract performed by Genko MATSUUMI and illustrated in his work entitled *Zenyoshu* (1741). The anatomy of the eye was later clarified by the *Kaitai shinsho* of Gempaku SUGITA, a work which heralded the beginnings of experimental medicine in Japan. Taijun YŪKI or YUZUKI or YUNOKI (died 1803), who may also have been known by the family name of UTSUGI, wrote a Japanese anatomical work in either one volume (FUJIKAWA) or six volumes (KURE) with the title *Kaitai sagen* (1797 or 1799), a work which was based on dissections and included the anatomy of the human eye. YŪKI also compiled an atlas of illustrations of eye diseases with the tentative title *Yūki-ryū ganshitsu zusetsu*,[10] which included a dissection of the eyeball; and he is known to have written an exposition of ophthalmology entitled *Ganka seigi* (n.d., but after 1796). All of those early efforts to elaborate the anatomy of the eye culminated in the *Gammoku meiben*, a one-volume work published in 1810 by Junan ISEKI, who was also known as Junan KINUOKA, a work which was the first Japanese book in ophthalmological science showing the *complete* detailed anatomy of the eyeball. Later in that same year the *Gammoku meiben* was revised by Junan's son (who was also called Junan) in collaboration with his disciple, Dōken SATŌ, and reappeared in two volumes. That work is known to have been influenced by Dutch science.

Another early source (i.e. before European influence became firmly established) from which we can gain some idea of the state of the practice of Japanese ophthalmology at that time can be found in a work entitled *Naifu hiden ganka ginkai seibi*, written by an unknown Chinese author[11] and printed in Japan in 1793. Like every other medical discipline in Japan, their early knowledge of ophthalmology, too, was copied from the Chinese and, later, modified by the influx of European teachings, with some original contributions by the Japanese

[10] Taijun YŪKI evidently never published that atlas, but in the year after his death appeared a work written by one of his students, Ryūtoku KAMON, entitled *Yūki-ryū ganka-sho* (preface date given as the 1st year of Bunka = 1804). At the beginning of that work are illustrations of the eyeball, followed by descriptions of various diseases of the eyes and "tools" (instruments) for operation, with remarks on symptoms and the treatment of specific ocular disorders.

[11] See Footnote 6.

themselves. The book described here may be the one referred to, but not identified, by FUJIKAWA in connection with his account of the history of ophthalmology in Japan, since it contains the same diagram(s) of the eye as reproduced in his classic writing on the history of medicine in Japan, the *Nihon igaku-shi* (1904, et. seq.). The *Naifu hiden ganka ginkai seibi*, which covered the entire field of ophthalmology as known at that time in China and Japan, started out with a description of their classical conception of the structure of the eye (Plate I-C). Based upon visceral and environmental relationships, that early conception or belief can be summarized as follows: the pupil "belongs" to the kidneys and is "related" to mountain and water (i.e. to scenery—not a bad idea at all); the iris belongs to the liver; the sclera belongs to the lungs and large intestine and is related to wind, heaven, and fire; the lacrimal caruncle (and probably also the lateral canthus) belongs to the heart; the upper eyelid belongs to the stomach and small intestine and is related to earth and thunder; the lower eyelid belongs to the spleen and urinary bladder and is related to earth and swamp. The foundation for this early conception of the eye and its relationship to the viscera[12] was their belief that, in a general sort of way, diseases of particular internal organs would be shown by abnormal appearances in specific parts of the eye—an ancient belief which certainly has its modern counterpart in the ocular manifestations of disease, so valuable in present-day diagnosis. Following that, in the *Naifu hiden ganka ginkai seibi*, is an extensive series of illustrations (line drawings printed from wood-blocks) of eye diseases and abnormal ocular conditions, with descriptions, and prescribing treatments found to have been efficacious in their cure. It is to be noted that ocular reactions were observed in response to or as a result of a variety of causes: poisons taken internally; "fevers" in liver and lungs; trichinosis; measles; smallpox (symptomatically called "smallpox-eyes"); congenital syphilis; kidney disease; "poison" in *sake* (rice-wine); wind (causing "itchy eyes"); cold temperature (accompanied by headache); etc. Cataract[13]

[12] Certain of these relationships were somewhat modified by the Japanese from classical Chinese beliefs. For example, in a Chinese ophthalmological work (no title) by one YIEH Tien-sz, originally published in 1758 and reprinted at Nanking in 1868, a diagram of the eye was shown in which the pupil was related to the genitalia, and in which the visceral relations of the upper and lower eyelids were reversed from the contemporary Japanese conception. That Chinese work by YIEH was partly translated into English in a paper by E. Ruel Jellison entitled "Translation of a Chinese work on ophthalmology. A reprint of a work on ophthalmology by Yieh Tien-sz" (*China Med. Missionary J.*, 13: 84–95, 1899), and commented upon in the German medical literature in a later paper by Hirschberg entitled "Ein chinesisches Buch über Augenheilkunde" (*Berliner ophthalmologische Gesellschaft. Verhandlungen*, 1905, p. 56–58).

[13] In the ophthalmological literature of the Western world one occasionally finds statements that the people of rice-eating nations are less affected with cataract than are the peoples of other nations. However that may be, in Japan at the beginning of the Meiji period (1868–1911) there was a considerable incidence of blindness due to keratitis, apparently a result of wide-

was described, as such, also other ocular conditions for which there were then no names but which were recognized, differentiated, and treated symptomatically, for example, "redness [of the eye] is contagious" (= acute contagious conjunctivitis). Finally, hyperopia was functionally described in these words: "He can see the place far away, but he cannot see near things well."

The work of Joseph Jakob von Plenck written originally in Latin with the title *Doctrina de morbis oculorum* appeared in a Dutch edition (unidentified)[14] in 1787, and from that edition was translated in abridged form into the Japanese language by Genshin or Shinsai UDAGAWA (1769–1834). UDAGAWA's work of translation was taken over by Kinchō or Rikkyō SUGITA (1786–1846) who added anatomical notations, corrected the translation and published it in 1815 in four volumes with the title *Ganka shinsho*. That work was important as the first Japanese translation of a Western book on ophthalmology, and marked the bibliographical introduction of European ophthalmology into Japan.

Later Japanese ophthalmological writings worthy of mention were the *Ganka teiyō* (1817) in one volume by Daien or Taien YAMADA; the *Ganka iryō tebikigusa* (1823?) in one volume by Kenryu FUJII; and the *Ganka senyō* (1826) in three volumes by Koboshi or Hokusui or Tai HIGUCHI, a work which was especially rich in descriptions of ophthalmological instruments. The works of HIGUCHI and YAMADA are also known to have been influenced by Dutch science.

In 1831 Fuichi or Shinichi or Toshiatsu HONJŌ (died 1846) published his *Ganka kinnō*, a Japanese work in four volumes comparing the theory and practice of Chinese and European (Dutch) ophthalmological methods. After the usual series of commendatory prefaces, that book presented the gross anatomy of the eye with particular reference to the ocular muscles and the optic nerve; following that, the description of the geometrical optics of the eye: the projection of an external object on the retina; and the degree or range of normal vision, from myopia to hyperopia, in relation to the curvature of the crystalline lens. All of these descriptions were illustrated with colored woodblock prints. Of unique interest is an illustration showing the different appearances of the *dōkō* ("apple of the eye" = the pupil) in the successive stages in

spread disease and uncleanliness in infancy and childhood. It should be remarked that ocular disorders, whether of simple errors in refraction or of pathology, seem to be the rule rather than the exception in present-day Japan—as judged simply upon the high incidence of eyeglasses and the remarkable prevalence of bandaged eyes observed in the native population, as one roams the streets of Tōkyō.

[14] The existence in Japan of such a Dutch edition of Plenck's work on the diseases of the eye is mentioned in the *Shiden roku* (n.d.) by Keizen or Zenkei MIZUNO, since in that book it is stated that a disciple of Gempaku SUGITA wanted to buy a "Dutch ophthalmology book" but didn't have enough money so he (G.S.) bought it and asked Genshin or Shinsai UDAGAWA to translate it—the result was the *Ganka shinsho*.

the making of artificial eyes. Volumes 1 and 2 presented diseases or abnormal conditions of the external or accessory structures of the eye (e.g. the eyelids) and treated of trauma, trachoma and acute conjunctivitis. Volume 3 elaborated the diseases and pathology of the internal eye (i.e. the eyeball). Volume 4 consisted entirely of prescriptions for the treatment of eye diseases. At that time in Japan ophthalmological science was a combination or admixture of Chinese and Dutch knowledge, and the *Ganka kinnō* was considered the best monograph on that practice.

A continuation of that work by Fuichi HONJŌ appeared in 1837 under the title *Zoku ganka kinnō*, in two volumes. That was a sort of clinical section to the earlier work. A series of wood-block illustrations, some in color, showed a variety of ophthalmological instruments, with textual descriptions of their use, and pictures of their application. For example, an instrument for applying medicine to the eye was made by tying a bag containing the medicine around the end of a wooden handle, and used by squeezing it against the eye with the head tilted backward. An eye-dropper, syringes, and a magnifying glass for use by the oculist were figured. Ophthalmological instruments consisted of various kinds of spoons, tubes, loops, forceps, scissors, needles, lances, knives, and clamps. Illustrations of each of these are shown. Retractors for the eyelids were of bamboo or of copper. Metallic instruments (cautery irons) to be heated in a charcoal fire were shown, with an illustration of them in use (Plate I-D). Other pictures showed the use of special needles in the treatment of cataract. Several of the illustrations in the *Zoku ganka kinnō* were important enough to be reproduced in Kenzaburō OGAWA's history of Japanese ophthalmology, his *Kōhon nihon gankagaku-shi*, described above.

Genseki (?) or Gentei (?) HABU (1768–1854), also known as HAU or DOU, is considered to have been one of the most distinguished of the Japanese ophthalmologists of the Edo period. He was an advocator of the Chinese school, but he also adopted certain of the Dutch teachings. HABU was perhaps best known for his operation of iridotomy, a procedure at which he became so proficient that he attracted the attention of Philipp Franz von Siebold who "marvelled at [HABU's] technique, coinciding with that of [Cheselden's] operation."[15] HABU's first corneal operation had been performed on a horse,

[15] William Cheselden, an English surgeon, had given the first description of iridotomy—the formation of an artificial pupil by cutting the iris—in a classic paper entitled "An account of some observations made by a young gentleman who was born blind, or lost his sight so early that he had no remembrance of ever having seen, and was couch'd between 13 and 14 years of age" (*Phil. Trans. Royal Soc. London*, 35: 447–452, 1729). A century later two Dutch books on the artificial pupil were published, in 1828 and 1829, but neither those nor any other European works on the subject were known in Japan in HABU's time. Indeed, after HABU had explained his original operation for cataract, Siebold is supposed to have pointed out that he (HABU) had developed the same operative technique as had Cheselden, *independently* of any knowledge of that prior English work.

and was described by one of his pupils, Keizen or Zenkei MIZUNO, in a book of unknown date entitled *Shiden roku* which was written in both Chinese and Japanese styles. (That work was reprinted by FUJIKAWA in the *Kyorin sōsho* in 1922). Genseki HABU's knowledge and technique in ophthalmology were set forth in two works of unknown dates, one entitled *Shigo-roku* the other *Raisai-roku*.

The influence of Philipp Franz von Siebold on the development of Japanese ophthalmology from his arrival in Japan in 1823 was especially marked. Two of his pupils deserve special mention: Genseki TSUCHIO, who was the first to produce mydriatic drugs in Japan, and Ryōsai TAKA (1799–1846) who first used them to dilate the pupil of the eye. FUJIKAWA tells us that A. F. Bauduin, who worked in Nagasaki, demonstrated an ophthalmoscope there in 1861 and practiced for the first time in Japan the operations of strabismus and plastic repair of the eyelids. Also noteworthy was Kōtei UEDA (1802–1841) who devised or "invented" an operation for a false or artificial pupil. Other noted Japanese ophthalmologists, not already referred to as the authors of books, were Gendō TAKEUCHI (1805–1880), Gyokukoi YASUDA and Sōken SUZUKI.

Three Japanese physicians at the beginning of the Meiji period are credited with having founded modern ophthalmology in Japan. They were Kinojō UME, Tetsuzō SUDA, and Tatsuya INOUYE. The last of these men published his observations in one volume in 1878 with the title *Inouye ganriyō*. It is noteworthy that the only modern Western work on the subject known by the writer to have been translated into Japanese during Meiji times was the *Lectures on ophthalmology* (unidentified) by "Schultze" (also unidentified accurately, but possibly Maximilian Johann Sigismund Schultze, who was the first to describe, in 1866, the nerve-endings in the retina). The Japanese translation was by Kenzō MITSUMA and was published at Tōkyō in 1879 as *Ika zensho ganka-hen*, in 12 volumes of text plus an atlas. A supplementary work (translation?) with the title *Ika zensho ganka-hen furoku* appeared at Tōkyō in 1882, "published by Seyen ANDŌ" (who may have been another contributor to a series of Japanese ophthalmological writings of that time).

Psychiatry

Mental diseases were at least alluded to in the ancient writings of Japan, more especially in the *Nihon shoki* (720 A.D.). In 702 A.D. the famous codex, the *Taihō ryō*, was issued, a governmental edict which attempted to regulate every aspect of human life in Japan, and which included references to epilepsy. Certain Chinese books which were routinely studied by medical students in Japan contained some psychiatric knowledge. Those books were, principally, the *Siu-pan-fong* and the *Tsâp-im-fong* and some parts of them were incor-

porated in the Japanese classic medical works, the *Ishinhō*[16] of Yasuyori TAMBA (912–995 A.D.) and the *Iriyaku shiyō* (or *Iryaku-shō*) of Masatada TAMBA (1021–1088). That latter writing was a one-volume work on medicine in simple form (i.e. on popular medicine) compiled and published in 1081, and reprinted in 1796 under the editorship of Genkan or Motohiro or Rekisō or Yasunaga TAKI (1755–1810). In olden time, mental diseases and "stroke" (apoplexy or cerebral hemorrhage)[17] were considered as the same "kind" of disease, and no attempt was made to distinguish one from the other (Plate II-A). Mental disturbances in relation to religious ceremonies, the use of *sake* (rice-wine), and sexual excesses were mentioned. Epilepsy, idiocy, "psychic disease,"

[16] A note on the chronology of this historically important work may be of interest. The *Ishinhō* was originally composed by Yasuyori TAMBA (912–995 A.D.), who began his work in 982 and completed it in 984, a compilation from pre-existing Chinese medical texts of the Tang Dynasty (618–906 A.D.) such as the *Byōgen kōron*, the *Senkin-hō*, the *Gaidaihyō-hō*, the *Taiso-ki*, the *Shinshū honzō*, etc. In its original form the *Ishinhō* consisted of 30 separate parts. An unknown descendant of the TAMBA family made a handwritten reproduction about the middle of the Kamakura period (1186–1315), a copy which was found a few centuries later in the Library of the Ninna-ji Temple at Nara. That copy, incomplete when found, was to be the "original" of an edition of the *Ishinhō* published as recently as 1935 under the editorship of Nakasaburō OGINO. In the meantime, Yasuyori TAMBA's manuscript of the *Ishinhō*—the original 30 rolls—had come into the possession of the Imperial Library, and in 1558 the Emperor Ōgimachi gave them to Zuisaku HANI or NAKARAI, who was a physician in the Imperial household and a descendant of Yasuyori TAMBA. Beginning in 1854 the original *Ishinhō*, which had been "kept" by HANI and by his family after his death, was revised under the supervision of Genken or Motokata TAKI (1795–1857) with the assistance of Naohiro KITAMURA and Naotada KOJIMA—all physicians of the Tokugawa Shōgunate—and in 1860 it was printed from engraved wooden blocks, that publication of the *Ishinhō* being made by authority of the Edo Igaku (a medical supervisory body of that time). The wooden blocks were destroyed by the earthquake and fire at Tōkyō in 1923. Yasuyori TAMBA's original manuscript copy—the oldest extant Japanese medical writing (from Chinese sources)—is now in the possession of a descendant of Zuisaku HANI. Besides its importance as one of the greatest of the old medical books of Japan, the *Ishinhō* also preserves many quotations taken from the pre-existing Chinese medical books referred to above, some of which were long ago destroyed or "lost" in China.

[17] Classical cases of psychosis were artistically represented in the form of paintings by an unnamed copyist, who is supposed to have taken them from the original pictures of the famous *Yamai-no sōshi*—which had depicted conditions of the sick as they were recognized in Japan in the 12th or 13th centuries. One of those pictures, showing the seizure of epilepsy (*tenkan*), is reproduced in FUJIKAWA's *Kurze Geschichte der Medizin in Japan* (Tōkyō, 1911). That illustration should be compared with Plate II-A, reproduced here indirectly from an old print, showing the seizure of cerebral hemorrhage (*nō-shukkutsu*). Attempts were also made in the *Shinsen yamai-no sōshi* (1850) to portray psychiatric conditions, perhaps the most difficult of subjects to express artistically. Plate II-B shows a psychoneurosis, the explanatory text leaving little doubt of its features of anxiety or compulsion or even of persecutory paranoia: "A priest has a curious habit [of] looking to the right and the left in turn when he goes through the street. Maybe he has some fear around him. It is [considered] to be a kind of disease."

depressive disorders, and melancholia were known. A form of hypnotic therapy was used, and it was believed that certain psychoses could be cured by moxa and/or acupuncture.

Shōzen KAJIWARA, who lived in the early part of the 14th century, wrote commentaries on the famous Chinese book the *Ping-yüan-hou-tsung-lun* which was known in Japan as the *Byōgen kōron*, but his knowledge of psychiatry appears to have been much less specific and less comprehensive than that of Yasuyori TAMBA. To treat mental diseases KAJIWARA used a medicine compounded from Ephedra vulgaris, Lonicera japonica, Siler divaricatum, and other drugs. His works are identified by the titles the *Toni-shō* (1303) and the *Mannan-hō* (1314–15).

YŪRIN, a Buddhistic priest of about 1360, advised or recommended the "drawing away of disease" (acupuncture *or* exorcism ?) and the application of moxa to the toes and other parts of the body. His 12-volume work on general medicine, the *Fukuden-hō*, which appeared in the latter part of the 14th century was compiled from existing Chinese and Japanese books, and described delirium due to fever and psychoses associated with the puerperium.

Chisokusō or Tokuhon or Tokumoto NAGATA (1512–1630) also known as OSADA, an early Japanese physician who was famous as a centenarian, was a believer in keeping the *status quo*, in preserving the "natural instincts" (*vis medicatrix naturae*) in disease. He was noted for his "psychological" approach to his patients at the start of treatment for any kind of complaint, actually using a very modern form of psychotherapy.

Geni NAGOYA (1629–1696), supposedly the first man to initiate reforms in the traditional (Chinese) school of medicine in Japan, described the insane in the beginning stages of their disease(s) as being in a sort of sleep, with disturbances in their imaginary world and defects of speech. NAGOYA claimed that such conditions, symptomatic of underlying mental diseases, could easily be cured by using the following drugs: Pinellia tuberifera, Coptis anemonefolia, and others of a similar nature. Rivan TARASHIMA (ca. 1722) studied mental diseases as a special branch of medicine, and recognized three broad categories: (1) Egoism, (2) Joy and escapism, and (3) Mania, fearlessness, and suicide. He further subdivided these categories, upon symptomatic bases.

References were made to a "water-cure" for mental diseases in the *Ishinhō*, and in the later writings of Japanese physicians of the 18th and 19th centuries, more particularly those of Shūan KAGAWA (1682–1754), Shōken TACHIBANA and Kinkei NAKAGAMI (1743–1833). The *Ippondō kōyoigen* (n.d.), a work on pathology by Shūan KAGAWA in 16 volumes, contained a chapter on epilepsy and in that work he also wrote on ideas of inferiority, repetition, and psychoses associated with pregnancy, the puerperium, and other periodical disturbances.

But in spite of the attention which must have been paid to psychiatric dis-

orders in the early days in Japan there appear to have been no monographic writings on mental diseases until the first half of the 19th century. The first Japanese monograph exclusively devoted to mental diseases was a work on epilepsy and mania published in 1819 by Kenyoku TSUCHIDA with the title *Tenkankyō keiken-ron* (*or -hen*), a book which described his clinical experiences with psychoses. A chapter on mental diseases was included in a work by Gensen TAMARA entitled *Ryōji saden*, published in 1823 in ten volumes. Near the end of the Edo period, Genchō or Sōken HOMMA (1804–1827) gave a description of mental diseases in his *Naika hiroku*, an important work on internal medicine in 14 volumes which appeared in 1864 (?), based for the most part upon teachings of the Chinese school but also including some suggestions from the Dutch. In that work HOMMA wrote on mental diseases due to poisoning, to disorders in the sexual life, to hypochondria associated with defects of memory; on psychoses following acute diseases (like typhus, for example), diarrhoea, carbuncles, insomnia, etc.; and he considered these manifestations as preliminary symptoms of mental disease. Later on in Meiji times, about 1900, a book devoted to mental diseases was published at Tōkyō by Maeda KADOWAKI with the title *Seishin-byō gaku*.

In addition to the physicians already referred to in this section, the following men, who were all well-known clinicians of their times, understood and treated mental diseases: Tōyō YAMAWAKI (1705–1762), Rokumon MOCHIZUKI, Tōdō YOSHIMASU (1702–1773), Taishū OGINO (1737–1806), Genkan or Keizan or Motohiro or Yasunaga TAKI (1755–1810), Nangai YOSHIMASU (1750–1813), and Ryōtaku KITAMURA (1804–1873).

A few historical remarks on the Japanese practice of psychiatry were included in the first volume of a three-volume work on clinical medicine entitled *Seikendō-chiken* (n.d.) by Kakuryō KATAKURA (1750–1822). For the non-Japanese reader, the history of psychiatry in Japan from ancient times to the early part of the Meiji period was written out in a paper by Shūzō KURE entitled "Geschichte der Psychiatrie in Japan" (*Jahrb. f.d. Psychiat. u. Neurol.*, 23: 1–17, 1903), from which most of the present notations were taken. After the Meiji restoration in 1868, Japanese psychiatry was influenced by Western, particularly German, medicine.

Dentistry

No apology is made for including dentistry as a medical specialty in this paper since at least in the early days in Japan it was not infrequently found in the hands of physicians who had inherited the dental art from an ancestor, practitioners in a branch of medicine which was known as *kochiu-ka* (stomatology).[18] The profession of dentistry was also originally an occupation of the *samurai*.

[18] It should also be noted that dentistry was "admitted" into general medicine in Japan by the establishment in 1903 of a dental infirmary at the Tōkyō Imperial University Hospital.

At a later period it became degraded by being taken up and practiced by men of lower classes, like the *rōnin* (masterless *samurai*, or soldiers of fortune). These men were very poor practitioners, and they further debased the art of dentistry by engaging in such diversions as hawking their trade, fencing, sword-swallowing, and the spinning of tops to attract the attention of sufferers from toothache.

Fortunately, there is a recent Japanese-written history of world dentistry, covering ancient times, the medieval period, the modern period, and the 19th and 20th centuries. The work referred to is the *Shika gakushi teiyō*, written by Tamejirō KAWAKAMI and published in 1949 in one modern-style volume. Included in that book is a section on the history of dentistry in Japan, from ancient days to recent times. Trauma and bleeding of the mouth and gums, diseases of the mouth, cavities in teeth, and a primitive form of corrective dentistry were all described in the famous work, the *Ishinhō* (982 A.D.). Upon that basis, the famous early Japanese physician, Yasuyori TAMBA (912–995 A.D.), is considered to have been the first to develop the art of dentistry in Japan, and a descendant named Fuyuyasu TAMBA removed the carious teeth of the Emperor Hanazono, who reigned from 1308 to 1318. Descriptions are given of dentists at the courts of the early emperors and of the shōguns during the Tokugawa period (1615–1867), and of the dentists who attended the more famous *daimyō* (aristocrats).

The earliest monograph in Japan of dental interest appeared in 1531 entitled *Kōchū hiden*, a work by Chikayasu TAMBA on the pathology and therapeutics of the mouth and dentistry. In 1577 the son of Chikayasu TAMBA "took" the name of Mitsuyasu CHIKAYASU[19] and described and commented upon his father's work in a one-volume work of his own entitled *Chikayasu hiden*, on diseases of the mouth and teeth. In 1592 a Japanese work on dentistry was published in one volume entitled *Kaneyasu shi-sho*, written by one ONDA whose prename was unknown. (In this instance "*Kaneyasu*" had nothing to do with either Kaneyasu TAMBA or the school of dentistry of the same name). A Japanese handbook of the therapeutic treatment of mouth diseases appeared in 1600 in one volume with the title *Kōchū ryōji hiyō*. The author's name was not given but that work is generally credited to Ansai KANEYASU, who was the 7th generation after Kaneyasu TAMBA. Kaneyasu TAMBA, in his turn, had been the 17th generation after Yasuyori TAMBA (912–995 A.D.). Dentistry of a sort was known in Japan before the time of the *Ishinhō*, but there were then no written dental works and no outstanding personality in the

[19] That circumstance can really be confusing. It should be explained that, for reasons unknown to us now, the original TAMBA family many generations later divided into two branches, the male heads taking as surnames the prenames of famous or favored ancestors. It should also be pointed out that "Chikayasu" and "Kaneyasu" also refer to "schools" of dentistry in the early days in Japan, each under the guidance of those respective branches of the TAMBA family.

art. Through this seeming confusion, Kaneyasu TAMBA emerged as the first early Japanese dentist about whom anything was known, but he apparently wrote no books. (Chikayasu TAMBA, who composed the earliest dental monograph, was the 4th generation after Kaneyasu TAMBA).

Upon the basis of artificial teeth (a full upper denture) made of wood found in 1623 in the tomb of Tamba YANAGIU, a famous fencing or dueling teacher, it has been claimed (KAWAKAMI) that such artificial teeth in Japan antedated those made in Europe by at least a hundred years and those made in America by nearly 150 years. The *Shika gakushi teiyō*, KAWAKAMI's history of world dentistry, goes on to describe two important Japanese dental works of the Edo period: *Ihō monyo* (1679) in ten volumes by Geni NAGOYA (1629–1696); and *Koka senyō* (ca. 1690) in five volumes by Tanken SANMI. Western dentistry, in its relation to Japanese dentistry of the Edo period, is also described. Einosuke OBATA (1877–1919) became the first licensed dentist in Japan, and he is now regarded as the founder of *modern* Japanese dentistry. From his time, roughly from the early years of the Meiji period, the more recent history of dentistry and dentists in Japan is outlined. The *Shika gakushi teiyō* ends up with a description of dental laws and regulations in Japan.

Tamejirō KAWAKAMI also wrote, in 1931, a larger work on the history of dentistry entitled *Shika igaku-shi*, and is the author of a volume of lectures on dental hygiene published in 1925 with the title *Kōkō eisei jūni-kō*.

HUANG TI, the Chinese "Yellow Emperor" (legendary dates, 2698–2598 B.C.), wrote on how to whiten teeth in his classic work, the *Nei Ching*. Toothpicks, some of very elaborate design, were known and used in China in the 3rd century B.C. and, later, in Japan where they were called *koyōji*. The early use of the toothpick in Japan followed a tradition with ritualistic significance, and has been reflected in recent modern times in regimented drills with the toothbrush among school children and even workers in factories. Some religious significance also persisted in the form of a day set aside as "dental decay prevention day." Services were held before an altar which supported a huge, badly decayed tooth, and small receptacles placed nearby may have been for votive-like offerings from tooth sufferers. In an interesting little book by an American dentist, Henry Lovejoy Ambler, entitled *Around the world dentistry* (Cleveland, Judson, 1910) we learn that at Yokohama there was a Buddhist temple dedicated to Kishimojiu, the mother of demons, and it was the custom for a mother with a child suffering from toothache to pray to Kishimojiu for her child to be cured. When—not if—a cure was obtained, thanks were given by offering pomegranates to the goddess-mother.

One of the interesting former dental customs of the Japanese was the blackening of the teeth of *married* women with the juice of the persimmon tree (or by other appropriate techniques), a custom known as early as 920 A.D. and prevalent until the time of the Meiji restoration in 1868 after which it gradually dis-

appeared. Blackening of the teeth was also sometimes used by courtiers and the *samurai*. (*Married* women also had their eyebrows and "superfluous" hairs on various parts of the body removed by shaving).

In connection with dental lore in Japan, reference should be made to a recent book by Heita YAMADA entitled *Nihon shika bunka-shi* (1933), on the history of dentistry in relation to Japanese culture.

The uncertain history of early dentistry in Japan has prompted some Japanese writers on the subject to date the beginning of Japanese dentistry with the advent of the Tokugawa "dynasty," as a part of the practice of medicine. Elsewhere in this study we have seen occasional references to dental diseases recognized by physicians, and noted particularly in Japanese works on surgery.[20] At that time (17th century) the dental art was limited to the extraction of diseased teeth, and the treatment of toothache and various oral diseases. Although forceps were known, they were but little used and extractions were done by using the fingers, sometimes after first loosening the teeth by hitting them with a wooden stick and mallet or by cutting away the gingiva with a special sickle-shaped knife. CHIWAKI states that pyorrhoea alveolaris[21] was recognized by the early Japanese practitioner and treated with opium or with *konronsan*, which was a mixture of unspecified drugs. Later, artificial dentures were invented by Bunchū SATŌ (ca. 1819), who attended the Princess Fumi, daughter of the then Shōgun. Like the dentures of earlier record, SATŌ's were made of wood, carved to simulate the actual teeth and to restore the natural appearance of the mouth. Artificial teeth of that time in Japan were also made of alabaster, white marble, or ivory and were fastened to wooden bases by metal pins, As described by CHIWAKI, it has been said that those early dentures functioned very well. A pupil of SATŌ, named Anchu SHIMIZU, was famous as the dentist to Unemenoshō TODA, the feudal lord of Ogaki. Throughout the entire Tokugawa or Edo period there were rarely any written works exclusively on dentistry (references to two important writings have been given earlier in this section), and there were no dental textbooks in the Japanese language. FUJIKAWA mentioned eight Japanese works produced in the Edo

[20] For example, in the *Geka seisō* (1791) an unidentified disease of the teeth was referred to "by which [the] roots of the teeth rot and grow black, with an unpleasant odor." Modern dental practice would certainly identify that condition as having been a carious involvement of the dentine of the root surfaces of the teeth which, if allowed to go unchecked, results in a group of dental conditions all with an etiological background of infection and showing the cardinal symptoms of inflammation with eventual decay and tissue necrosis.

[21] If this condition was described in Japanese dental writings of the 17th or early 18th centuries, their recognition of it may antedate the classical account by Pierre Fauchard as given in the second edition of his *Le chirurgien dentiste, ou traite des dents* . . . (Paris: Mariette 1746). Attention should be called to one of the illustrations in the classical 12th or 13th century Japanese medico-artistic work known as the *Yamai-no-sōshi*. Reproduced here as Plate II-C, the explanatory text is as follows: "There was a man whose teeth were so loose that he could chew nothing but very soft foods. He suffered very long as the teeth did not fall [out]."

period which were classified as on diseases of the mouth and dentistry, but it should be pointed out that no sharp distinction was made between oral disease and dental disorders.

The old-fashioned traveling dentists (Plate II-D), referred to at the beginning of this section, often combined their art with that of chiropody. However, their practice can be completely described as having been limited to the extraction of teeth and the cutting of corns. Those mountebanks gradually fell into disrepute, and dental science in Japan—in the modern sense—found its beginning in 1873 with the creation by the government of a dental board of examiners. There were no formal schools of dentistry at that time and a knowledge of the subject was gained by apprenticeship. Foreign dentists[22] practicing in Japan appear to have been the chief mentors. Preëminent among them were the following: William Clark Eastlake, who was the first to open a dental office in Japan (at Yokohama) and who later died at Tōkyō, where a monument commemorating his services to Japanese dentistry can be seen; W. St. George Elliot, who introduced many mechanical devices and gadgets for dental use, including the first wooden dental chair; Horace Mason Perkins, who taught several Japanese pupils, who, in their turn, became noteworthy in the art; and Henry Winn, a dentist who was also a Dutch Reformed minister. All of these men were Americans. A French dentist also practiced in Japan, a Dr. Alexandre, who also trained several Japanese apprentices in dentistry.

The first Japanese student of modern dentistry was a pupil of Eastlake, Yasubei or Tomatsu HASEGAWA, who afterward practiced at Tōkyō. Noted pupils of Perkins were Sukezō NICHIMURA, Shinzō WATANABE, and Kiyoaki or Torū HORIUCHI, each of whom opened dental offices at Osaka and Kyōto, and through whose efforts modern dentistry was spread throughout western Japan.

Einosuke OBATA (1877–1919), a *samurai* by birth and the first *licensed* dentist in Japan, was a disciple of Elliot. Another of Elliot's followers was Tsutomu SAJI. Students of Alexandre were Kinsai KANWŌ and Kunisaburō TAKEZAWA, who with the help of certain other Japanese dentists opened a dental lecture course at Tōkyō in 1889. Their efforts to promote dental education eventually developed into the Kyoritsu Shika Igakko (Kyoritsu Dental School), the precursor of the Nihon Shika Igaku Senmon Gakko (Nippon Dental College), whose first president was Ichigorō NAKAHARA. Kunisaburō TAKEZAWA, incidentally, made artificial dentures in 1877 with teeth of ivory. In 1885 Japanese dental instruments were devised or invented by Hōichi MATSUZOI.

The first dental school in Japan was the Takayama Shika Igaku-in (Taka-

[22] Also to be noted here is the name of Philipp Franz von Siebold, a German physician who came to Japan in 1823, and who exerted not a little influence on the development of Japanese dentistry. His dental instruments are—or were—preserved in the Nagasaki Library.

yama Dental School), established in 1889 at Tōkyō by Kisai TAKAYAMA at his personal expense. That school was the predecessor of the present Tōkyō Shika Igaku Senmon Gakko (Tōkyō Dental College). TAKAYAMA, also coming from a *samurai* family, had studied dentistry in America. After his return to Japan he did much to develop the profession of dentistry, and several dental books were published under the imprint of his school. He was regarded as Japan's foremost dentist in his time.

Kisai TAKAYAMA apparently wrote the first *modern* Japanese treatise on the teeth, a two-volume work entitled *Hoshi shinron*, published at Tōkyō in 1881. His *Shika yakubutsu tekiyō*, on the essentials of conservative dentistry, appeared at Tōkyō in 1886. Two well-known Japanese dental experts at the beginning of the Meiji period were Ryōsai WATANABE and Michimori IZAWA, each of whom were members of families of the so-called stomatologists (medical practitioners who, in an earlier period, had been noted for their abilities in the treatment of diseases of the mouth). WATANABE was thoroughly versed in the techniques of making artificial dentures and later took out several patents on porcelain teeth. IZAWA, under the prename of Dōsei, wrote the first Japanese work of the modern period on dental hygiene in 1881 with the title *Hagatamagusa*, and was well-known at the time for an untitled illustration in the form of a poster showing the chronology of dentition in normal persons. His son, Shimpei IZAWA, who was trained in America and graduated from the Harvard University Dental School, wrote one of the first Japanese textbooks of the modern period on dentistry, a work entitled *Shika mondō* published in 1887. In 1885 Kametarō ŌTSUKI wrote a Japanese textbook of dentistry known by the title *Shika zensho*. In 1889 Yoshinao KOBAYASHI published his *Shika teiyō*, which appears to have been the first Japanese translation in the Meiji period of a foreign dental text (unidentified except as a book by one "Paraito," with no citation of title nor date). Later on, several American dental books were translated by Yasutami KOJIMAHARA. The above-mentioned works were the first and most important Japanese writings on dentistry and the dental art to appear at the beginning of the modern period.

In 1890 the Tōkyō Dental College published several textbooks written by its professors, and for many years afterward that school was the chief source of dental literature in Japan, much of which was translated from American dental

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PLATE II

FIG. A. Artistic representation of the seizure of cerebral hemorrhage (*nō-shukkutsu*), from an old woodblock print.

FIG. B. A graphic portrayal of a patient with a psychoneurosis, redrawn from the *Shinsen yamai-no sōshi* (1850).

FIG. C. An illustration of a patient suffering from pyorrhoea alveolaris, from the *Yamai-no sōshi* (12th or 13th century A.D.).

FIG. D. A typical dental charlatan of the Edo period in Japan, from the *Shika iji eisei-shi*.

A

B

C

D

texts and journals. Between 1890 and 1902 about 18 dental treatises were published in Japan, in the writing of which many important foreign (mostly American) dental works were consulted.

In addition to the foreign dentists who practiced in Japan and taught Japanese apprentices, several Japanese students came to America where they were trained in American dental schools. Those men later returned to Japan where they introduced American dental methods and discoveries, and themselves undertook the instruction of succeeding generations of dentists. In spite of this, CHIWAKI states that many Japanese of that period (late 19th century) suffered from dental caries[23] because of a lack of dentists.

Dentistry, which originally came to Japan from China quite early (no exact dates are known), was later modified by Portuguese and Dutch influences. Then followed a hiatus until Western dentistry was re-introduced into Japan by the arrival of Philipp Franz von Siebold in 1823. There is a recent Japanese book on dental history and dental hygiene in Japan from Siebold's time to the year 1906, contained in the first volume of *Shika iji eisei-shi*, published in 1940 by the Nihon Shika Ishikai (Japanese Dental Doctors' Association) under the editorship of Shoichiro OGAWA. That book contains portraits and biographical notations of many noted Japanese dentists, rules for dental practice, information on dental hygiene, instruments, organization, education, and literature, and is well illustrated throughout. In 1906 a law regarding the practice of dentistry was established in Japan, and the second volume of *Shika iji eisei-shi* carries on the history of Japanese dentistry from that time to the present Shōwa period. In 1941 a *supplement* to that book was issued in pamphlet form, giving a chronology of dentistry in Japan from earliest times to the modern period.

The Dental Law of 1906 was improved through the efforts particularly of Morinosuke CHIWAKI, who was a recent president of the Tōkyō Dental College; Susumu TOMIYASU, who was well known as the editor of the dental journal *Shigaku Kensan*; and Sekiichi ENOMOTO, whose son became one of the first Japanese orthodontists.

The history of orthodontia in Japan has been briefly described in a short historical sketch in a Leipzig thesis by Hiashi SAITO (born 1893) entitled *Über die Entwicklung der Orthodontie in Japan* (Leipzig, A. Edelmann, 1932). According to SAITO, the practical use of orthodontia was introduced into Japan about 1910 by Sadajoshi TARAKI, who had studied under the famous American orthodontist, Edward Hartley Angle. Interestingly enough, TA-

[23] The present-day Japanese people seem to be particularly prone to incur dental defects, as judged from the extremely high incidence of dental inlays and crowns observed when they smile or laugh. There is also some reason to believe that visible evidence of dental work is considered by the Japanese as a mark of distinction, varying in direct proportion to the amount of such work.

RAKI's professional activities and his lectures were entirely of a theoretical nature, and he apparently did no actual work with patients. It remained for two Japanese dentists, Umahiko ENOMOTO and Hiashi SAITO, to treat (in 1912) the first orthodontic patient in Japan, a female whose malocclusion was corrected with the help of Angle's apparatus. Since that time great numbers of orthodontic patients have been treated, a background of experience for the Japanese which has given them the opportunity to solidify the importance of orthodontia in the practice of dentistry in Japan and to improve existing orthodontic apparatus.

In addition to *Shika gakushi teiyō* by Tamejirō KAWAKAMI, another recently-published Japanese-written history of world dentistry, exclusive of Japan, entitled *Shikai shi* (1940) by Kiyoshi YAMAZAKI describes for the Japanese reader the historical development of dentistry in the Western world. *Shikai shi* covers dentistry in Greece, Rome, the middle ages in Europe, and the modern period in Europe and America. Special accounts are given of the work of Francisco Martinez, Ambroise Paré, Urbain Hemard, and Pierre Fauchard. It contains many illustrations reproduced from Western books.

An American dental writer, G. Layton Grier, expressed in 1932 his belief that "when the history of the development of dentistry in Japan is written, the name of Dr. Morinosuke CHIWAKI, president of the Japan Dental Association and the Tōkyō Dental College, will stand preëminent . . ." However that may be, it should be noted here that by far the best account of the history of dentistry in Japan to be found in any Western language was contained in a paper by Morinosuke CHIWAKI entitled "Dentistry in Japan" (*Trans. 4th Internat. Dental Congress*, St. Louis, 1904, 3:425–441, 1905), upon which some of the information in this section is based. Finally, it is to be regretted that Louis Ottofy, an American physician and dentist who had practiced in the Orient, died (about 1943) before he could complete and publish a book to which he had already given a title, namely, "A history of medicine, surgery and dentistry in the Far East. Part I. Japan."

(To be continued)

Medical References in *The Arabian Nights*

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As a repository of lay opinion concerning medicine and its cognate sciences in the medieval Islamic world *The Book of the Thousand Nights and a Night*[1] or *Arabian Nights* is worthy of investigation. This "Eastern Saga-Book," as Richard F. Burton called it, is available in a number of editions of which the most definitive in English is Burton's own. This is not only very full, but Burton's energetic comments upon the editions of his predecessors and upon their interpretations of details are highly provocative. His edition contains, moreover, indices for each volume as well as a general index by F. Steingass.

Despite the copious and intelligent nature of these indices the modern medical reader cannot be certain that some topic in which he may be interested has not been missed. To take a case in point, it has often been emphasized, in support of the theory of the American origin of syphilis, that no notice of this disease appears anywhere in this collection of medieval Arabic tales and that such absence cannot be entirely explained upon the basis of the delicacy of the subject matter considered.

It is not my present purpose to discuss the origin of syphilis but rather to enquire into whether such a categorical statement about the "Arabian Nights" is entirely meaningful. One can, of course, examine Burton's indices for the principal topic and other suggestive items, but, in so doing, we are assuming that the compiler and indexer recognized the signs and symptoms of syphilis when they came across them in the tales if such signs and symptoms are there. Such expectations are probably unjustified. Burton himself was well aware of the significance of his collection in arriving at a decision about questions of this

[1] The references given in this article are to the "Mecca" "catch-word" issue of Richard F. Burton's *The Book of The Thousand Nights and a Night*, 17 vols., n.p., n.d. This is identical with the "Benares" (Stoke Newington) Edition and is in fact an early 20th century electro reprint of the original type edition which appeared in 1885–1888 in 10 volumes with six supplemental volumes. The only differences between the original and electro edition are in manner of arrangement of lines on the title pages and the arrangement of the Supplemental Volumes, the original third Supplemental volume being now split into two. For a more complete account of the different issues of this translation by Burton see N. M. Penzer's *An Annotated Bibliography of Sir R. F. Burton*. London, Philpot, 1923.

type and, indeed, in his "Terminal Essay" (vol. 10, p. 88–90) specifically considered the possibility of the Pre-Columbian existence of syphilis in the medieval Islamic world. His own negative conclusion forms the basis for a large part of what is subsequently encountered in the literature on this matter. We may accept the fact that Burton had a better than average layman's knowledge of the signs and symptoms of syphilis (his confusion with dourine was not uncommon, even for the physicians of his day), but it is not easy to extricate a conclusive definition of any disease from the lay literature, even when we know that the disease in question flourished at the time any particular writers were alive. Surely the circumstances demand a careful examination of the tales themselves if we are to satisfy ourselves upon such a matter. When this is done it is quite clear that the Arabic literature is in exactly the same state as the Latin and Greek with regard to syphilis. Thus it is not possible to determine whether syphilis was or was not included in what C. C. Mettler (page 612, *et seq.*) has called the "leprosy complex." Indeed the best witnesses to the nonexistence of syphilis in the medieval Islamic world are not the yarn-spinners of the *Nights* or the classical medical writers of the medieval period, but rather, as in Christian Europe, the medical writers of the time of the supposed introduction of the disease. We possess such an Islamic witness in the Persian, Baha'-ul-Douleh (Elgood), who says the disorder first appeared in Azerbaijan in 1498 and became practically universal in Persia by 1504.

The mores of medieval Islam were not preserved up to the times of Burton. For this reason, as well as because of the fluid nature of folk tales, it would be unrealistic to suppose that Burton's version presents us with a reliable account of medicine and its cognate sciences in the medieval Islamic world. It is rather a mid-nineteenth century Arabic version of this. Whatever difficulties may exist because of the introduction of later transitional material or interpretation, there is little reason to doubt the proper Islamic character of Burton's edition. In this respect he is a more reliable witness than earlier translators like Galland and Lane, the latter having actually altered the tales to agree with his notions of propriety. It may be questioned whether any future translation will ever be made of this material which will come closer than Burton's to the original letter and spirit of the source material.

It may be considered presumptuous to suggest that the lay Arabic literature may yield a truer conception of the state of medieval medicine in Islam than one might obtain from an unwary perusal of the writings of the so-called "Arabic" medical authors. The spurious character of much of the hermetic literature has long been known (Mettler, p. 190) but the extent to which productions of genuine and important western scholarship were projected backward into the Arabic past has not been widely appreciated (Thorndike, vol. 2, p. 26–27, Waite).

Another reason for medical concern with a body of folk literature is that

there are many areas with which medicine is presently concerned which did not occupy any particular place in the formal medical literature of the distant past. The social position of the child, the blind, deaf, and insane was not informatively considered by formal medieval medical writers. Neither is it always clear to what extent or how seriously the official pronouncements of formal medicine were accepted by the people.

The present writer's initial interest in this body of eastern literature arose in connection with a search for material bearing upon the neural system, but it soon became apparent that such a restriction of interest would be wasteful in view of the amount of time that it would take to go through the many volumes of the Burton edition. There have consequently been presented in the following pages whatever references have seemed to have any bearing upon medicine in accordance with our present day frame of reference.

General References

Perhaps the most frequently cited reference dealing with medicine in the *Arabian Nights* are the epitomes of learning cited in "Abu al-Husn and his Slave-Girl Tawaddud" (V: 195 *et seq.*) and that of Nuzhat al-Zaman (II: 151). These are not, strictly speaking, examples of medical lore among the laity, but rather extracts from the authorities of the day.

"Tell me," said the merchant in the "Tale of King Omar bin al-Nu'uman and his Sons" (*loc. cit.*) "dost thou know the Koran by heart?" "Yes," answered she; "and I am also acquainted with philosophy and medicine and the prolegomena of science and the commentaries of Galen, the physician, on the canons of Hippocrates; and I have commented him and I have read the Tazkirah and have commented the Burhan; and I have studied the Simples of Ibn Baytar, and I have something to say of the canon of Meccah, by Avicenna. I can see riddles and can solve ambiguities, and discourse upon geometry and am skilled in anatomy. I have read the books of the Sháfi'i' school and the Traditions of the Prophet and syntax; and I can argue with the Olema and discourse of all manner learning. Moreover I am skilled in logic and rhetoric and arithmetic and the making of talismans and almanacs, and I know thoroughly the Spiritual Sciences and the times appointed for religious duties and I understand all these branches of knowledge."

Another such catalogue of virtues is recited by the barber in "The Tale of the Tailor" (I: 305) whose loquacity seems quite reminiscent of some modern day practitioners of the trade. "Allah hath bounteously bestowed on thee a barber, who is an astrologer, one learned in alchemy and white magic; syntax, grammar, and lexicology; the arts of logic, rhetoric and elocution; mathematics, arithmetic and algebra; astronomy, astromancy and geometry; theology, the Traditions of the Apostle and the Commentaries on the Koran. Furthermore, I have read books galore and digested them and have had experience of affairs

and comprehended them. In short I have learned the theorick and the practick of all the arts and sciences; I know everything of them by rote and I am a past master *in totâ re scibili*. Thy father loved me for my lack of officiousness, argal, to serve thee is a religious duty incumbent on me. I am no busy-body as thou seemest to suppose, and on this account I am known as The Silent Man, also, The Modest Man."

While bookish knowledge may have seemed worthwhile to the formulators of the tales which compose the *Nights* it is skill, rather than theoretical knowledge, which the layman appeared to value in the physician. Says the Second Wazir, in the story of "The Fishes and the Crab" (XI: 45) "The best of things is that the King of a people be just and equitable, their physician skilful and their teacher experience-full, acting according to his knowledge."

Again, in the story of Aladdin we find (XIII: 97) "O my son, as thou sense aught of pain or such like, let me know that I may fare forth and fetch thee the physician; and today there be in this our city a leech from the Land of the Arabs whom the Sultan hath sent to summon and the bruit abroad reporteth him to be skilful exceedingly. So, an be thou ill let me go and bring him to thee."

Despite the etiologic theories of Hippocrates and Galen, the cause of disease for the lay Arab was essentially beyond comprehension or, possibly, a form of divine retribution. The philosophy of Job's companion, Bildad the Shuhite, is echoed with Islamic fervor by the Third Wazir in the tale of "The Crow and the Serpent," (IX: 47) who, speaking of Allah, says, "I am the Harmer with adversity and the Healer with prosperity. I make whole and make sick. I enrich and impoverish. I kill and quicken; in my hand is everything and unto Me all things do tend."

This point of view (expressed also in the story of "The Jewish Kazi and his Pious Wife," V: 257–258) was expanded in the fatalism of a people powerless to deal with the many misfortunes of their hard existence " 'tis my counsel that we take patience and await what Allah shall do with us. An death come to us, as is wont, we shall be at rest, and if there befal us aught that calleth for flight, we will flee and depart our land whither Allah will."

The organization of the medical craft in Islam seems to have been essentially the same as in the northern Mediterranean area. Thus, side by side with the learned and more or less settled physicians of the city, who were charged with institutional, among other, duties ("Tale of the Jewish Doctor," I: 288 *et seq.*), there existed a distinct class of barber surgeons and large numbers of itinerant leeches. Doubtless these latter fellows corresponded to the wandering Sicilian oculists and lithotomists and included, with the latter, a great variety of criminal practitioners (Mettler, p. 854) and plain fakes. The manner in which the latter functioned is graphically detailed in "The Tale of the Weaver who became a Leach by Order of his Wife" (XI: 282 *et seq.*). In this we still encounter the ancient Babylo-Assyrian practice of patients or their relatives gathering

in number before the leech, who has taken up his position in a bazaar or at a cross-way, where these people publicly recited their signs and symptoms and those of their relatives as much for purposes of mutual comparison as for consultation with the leech. We also notice that uroscopy now played a major role in such "consultations" being further described in the story of "Ni'amah bin al-Rabi'a and Naomi his Slave Girl" (IV: 11).

The Islamic barber-surgeon occupied a lower position in the social scale than did his Christian counterpart. In "Ibrahim bin al-Mahdi and the Barber Surgeon" (IV: 104 *et seq.*), the latter is a negro slave who, although he is prosperous enough, still lives under the opprobrium which the ancient Egyptians visited upon those who cut flesh or shed blood other than in battle.

Those barbers who were personal attendants upon persons of note achieved a status far above that of their colleagues. It is not surprising that "The Silent Man," mentioned above, is said to have managed to achieve the post of personal barber to a king.

It would probably be a mistake to suppose that in all Islamic areas and at all of the time covered by the legends the practice of surgery was strictly divorced from that of medicine and in the hands of unlearned men. The Supplemental Nights' tale of "Khudadad and his Brothers" (XIII: 293) presents us with a picture of a surgeon who is a man of probity and considerable worldly wisdom, if not formal education.

Also to be noted among the practitioners of medicine of the times were the faith-healers ("Abdullah bin Fazil and his Brothers," IX: 347) who seem to have occupied a position somewhat like the temple-guardians of the classic Greeks.

Anatomy and Physiology

With the exception of the formal synopsis of anatomy and physiology given by the slave-girl Tawaddud (V: 218 *et seq.*), the anatomic references in the *Arabian Nights* are commonplace. The principal viscera are named, usually in connection with physiological implications of a Peripatetic nature. Thus the "arteries" of the neck of an unconscious man are anointed by the barber surgeon in "The End of the Tailor's Tale" (I: 351), the rationale for this maneuver being, no doubt, that these vessels were supposed to transmit the "pneuma" to the brain. "Where," says the Caliph to Tawaddud, "is the seat of the understanding?" She, answering directly according to Galenic extension of Peripatetic theory, says, "Allah casteth it in the heart whence its illustrious beams ascend to the brain and there become fixed" (V: 195–6).

The liver and gall-bladder are frequently noted, usually in connection with feelings of annoyance or anger (as in the "Tale of the Tailor," I: 306, 309), or sorrow (as in "The Third Kalander's Tale," I: 157) or in association with the idea of generation (as in the "Tale of the Trader and the Jinni," I: 27) or

"Aladdin" (XIII: 100). Burton had some difficulty with the conception of the liver as the seat of the passions and on one occasion at least ("Tale of Kamar al-Zaman," III: 240) substituted, as his footnote shows, the word "heart" for "liver" as being more congenial to the popular English meaning of his day (and ours). Very probably the reading of the word "heart" in the "Tale of King Omar bin al-Nu' uman and his Sons" (II: 200) must also be so understood. The doctrine of the four philosophical "qualities" (Mettler) is cited in "Abu al Husn and his Slave-Girl Tawaddud" (V: 234) as also are the humoral theory (V: 218) and the dictum of vital heat (in "The Tale of the King who kenned the Quintessence of Things," XI: 215). The account given of the treatment accorded the hero in "Abdullah bin Fazil and his Brothers" (IX: 347) does not give any hint that the narrator had any clear physiologic conception of how a drowned person should be treated—a rather strange circumstance for a culture noted for its corsairs.

Burton's personal notes expand the number of anatomical and physiologic references available in his edition. Thus the "Tale of the Birds and Beasts and the Carpenter" has been annotated (III: 123) to point out that the calvarial sutures constitute a kind of cryptic writing wherein the individual's fate is disclosable, though, of course, not by any practical antemortem technique! Interesting though these notes may be it would appear to be beside present purpose to consider them when they do not deal directly with matter in the text.

The compilers of the tales recognized the traditional five senses ("King Jail'ad of Hind and his Wazir Shimas," IX: 83), a matter of some interest since a scheme utilizing seven or eight senses was later employed in the days of Cervantes in the area of the Western Caliphate.

Materia Medica

The progress made by individual Arabic scholars in the field of chemistry exerted little influence upon the materia medica of their day. Alchemy was officially banned not merely because the manipulation of nature, or magic, was considered contrary to divine will, and therefore immoral, but more particularly because the primary interest in alchemy stemming as it did from the urge to "get rich quick" provided an opportunity for swindlers to take advantage of the gullible. In the light of our knowledge that the adulteration of metals was far advanced in Alexandria in the times of Archimedes it is interesting to observe that most of the alchemical adepts ("Hasan of Bassorah," VIII: 11), or rather swindlers, in the *Nights* are said to have been "Persians." It must be borne in mind, however, that it was the fashion of the times to charge all rascality to the account of the Persians.

The materia medica of the *Arabian Nights* is a composite of Babylo-Assyrian, Egyptian, and Greek folklore overlaid by all the old wives' tales of

Herodotus and the worst nonsense of the Byzantine writers. Once again we follow the operation of the magical principle of *similia similibus curantur* in the use of materials such as the citron for jaundice ("The History of Gharib and his Brother Ajib," VI: 277). Once again we find use made of the device of birds to gather inaccessible materials ("The Second Voyage of Sindbad the Seaman," VI: 18) and once again we encounter the use of excrement ("Tale of King Omar bin al-Nu'uman and his Sons," II: 223). The Byzantine remedy of snake's flesh for dermatologic complaints ("The Queen of the Serpents," V: 394) is an application of the law of *similia similibus curantur*, since snakes shed their skin. Perhaps the employment of such material as food by women to ensure the birth of male children ("Sayf al-Muluk and Badi'a al-Jamal," VII: 321) is an extension of the same principle and utilization of a part of the elaborate serpent rituals of Africa and the Hellenic world which reached their most complete development among the Ophites.

A very considerable proportion of drugs mentioned in the *Nights* are for the purpose of depriving the individual either of wakefulness or reason. Not all of these can be identified. One with very strange properties ("The Fourth Voyage of Sindbad the Seaman," VI: 36) has been variously considered to have been stramonium or cannabis. Cannabis appears, of course, in many of the tales of the collection. Such are the "Tale of the Ensorcelled Prince" (I: 70), "Ala al-Din Abu al-Shamat" (IV: 71), and "The History of Gharib and his Brother Ajib" (VII: 32).

In addition to hypnotics and media to aid in the generation of children, and especially male children, the tale-spinners were much concerned with aphrodisiacs ("Ala al-Din Abu al-Shamat," IV: 32) and what might be termed cosmetics, including depilatories ("Abu al-Husn and his Slave-Girl Tawaddud," V: 243).

References which may be considered special categories of the materia medica of the "Nights" are those which are concerned with the care of the chronically ill, convalescent, and wounded. These may be deferred for consideration below under the rubrics of medicine and surgery.

Although poisoning is not infrequently alluded to, and theriac ("Tale of Kamar al-Zaman," III: 241) is mentioned, the references are vague and it is to be doubted not only whether the peoples of Islam knew of any substances which might be used for slow poisoning but even whether they thought they were familiar with such a thing.

Medicine

It has been pointed out above that physicians in medieval Islamic cities sometimes held hospital appointments, but they do not seem to have been very proud of such connections. Even the hospital at Bagdad ("The Tale of Ghanim bin Ayyuh," II: 70) was very obviously a place where no one would go who

was not *in extremis* ("Tale of King Omar bin al Nu' uman and his Sons," II: 134) and where no one would be taken who had relatives or friends worthy of those names. Nursing care was of a supportive type with attention to adequate fluid intake with simple carbohydrates and meat broths (*ibid*, 135–136). Bathing was avoided during illness though it was customary to sprinkle water on the face of the sick. If the ill person was of considerable rank, and the cost of nursing care were of no concern, this regimen might be extended by the use of the more formal ptisans of Hellenic medicine (Mettler, pg. 175), the employment of fumigation, with incense, and the establishment of various astrological rituals ("Sayf al-Muluk and Bada'a al-Jamal," VII: 332). Vegetarianism is noticed in the *Nights* ("Iskandar Zu al-Karnayn," V: 253), but not in such a manner as to indicate popularity.

Examination of the patient consisted for the most part in obtaining a very lengthy and elaborate history in which, as well as in inspection, considerable shrewdness was often displayed. The role of uroscopy has been referred to above. Much pulse lore had been accumulated and the Alexandrian legend of the detection of emotional excitement by keeping track of the pulse (Mettler, pg. 114) is noticed in the "Tale of the Jewish Doctor" (I: 289). This principle, knowledge of which has also been attributed to Avicenna (Browne, p. 85) turns up again and again in the Arabic literature and is employed in the 13-century mystical tale of Jalalu'ddin entitled "The King and the Handmaiden" (Nicholson, pg. 7).

While the Arabic ideal of physical perfection, and thus presumably of health, no doubt varied from time to time and place to place, the "Tale of Núr al-Din Ali and his Son" (I: 251) lists, in one of the series of questions and answers of which the narrators are so fond, clarity of complexion, slenderness of shape, and beauty of hair as highly desirable. The second quality is a somewhat unexpected one, but in a land of parasites, dermatologic affections, and smallpox the other desiderata are more than intelligible.

Smallpox is treated rather casually ("Story of the Hunchback," I: 256) in most of the stories indicating its endemic character whereas the references to plague ("Tale of Núr al-Din Ali and his Son," I: 253) clearly memorialize its occurrence in epidemic form.

Burton employs the word diabetes in his translation of the story of "The Thief and the Shroff" (IV: 275), but the reference is an extremely spare one.

The elephantiasis mentioned in the *Nights* ("Hasan of Bassorah," VIII: 24) is not the same disorder as is so designated today. The relation of this condition to "leprosy" (*idem* and "Abu al-Hasan and Abu Ja'afar the Leper," V: 294 *et seq.*) been discussed by Mettler (p. 613) who pointed out that what has passed for leprosy in the medieval literature was no single disease but any one of many foul disorders, among which venereal affections could have been encompassed. The descriptions in the *Nights* are not sufficiently specific

to draw any conclusions as to the exact nature of any of the disorders. The use of serpent's flesh for such disorders has been alluded to above.

Surgery

The obstacles to the acceptance, among Moslems, of individuals who cut flesh and let blood has been noticed above, but these obstacles could not obliterate surgical practice, especially among a people as warlike as the Moslems, and the surgical practices in the Arabic world were not notably different from those in medieval Europe. The use of boiling oil ("Tale of the Jewish Doctor," I: 297) and sutures ("The Story of King Sulayman Shah and his Niece," XI: 133) were standard practice. It has been pointed out that it was not the custom to bathe while ill. This was especially important if the sick person were wounded, it being prohibited to use water on wounds ("Abu al-Husn and his Slave-Girl Tawaddud," V: 199–200) which were treated with primitive styptics ("Ibrahim bin al-Mahdi and the Barber Surgeon," V: 108).

Obstetrics

As in Christianity the practice of obstetrics in Islam was in the hands of the midwives. Evidently the social status of midwives and barber-surgeons was comparable and marriage between the two ("Kamar al-Zaman and the Jeweller's Wife," IX: 259) must have been a mutually advantageous liaison.

A system of notation for the duration of pregnancy was in use ("The Third Kalandar's Tale," I: 146) which although basically faulty (Burton gives an explanation of the system) still served the purposes of practical calculation. The method of handling the newborn was simple ("Tale of Núr al-Din Ali and his Son," I: 231), but evidently not prejudicial to life ("Ala al-Din Abu al-Shammat," IV: 33).

The position during delivery, noted in the *Nights*, was that enforced by the obstetrical stool ("Tale of King Omar bin al-Nu' uman and his Sons," II: 80, 173; "Tale of Táj al-Mulúk and the Princess Dunyá," II: 290), though Burton assures us that other postures and techniques were in use among different groups of Moslems.

Circumcision, customary among Moslems ("Abu al-Husn and his Slave-Girl Tawaddud," V: 209) was not, according to Burton, an absolute essential of the faith. It was employed upon females ("The Moslem Champion and the Christian Damsel," V: 279) as well as males. According to Burton, the operation in the female consisted of lopping off the labia and head of the clitoris.

No notice of obstetrical monsters appears in the *Nights*, insofar as I am aware, but there are numerous notices of mythical beings, including impossible monsters such as those mentioned by the classical Greek and Roman writers and later by Licetus. Among them are creatures with eyes in their chests ("Abu Mohammad hight Lazybones," IV: 176), somewhat after the fashion

of the wholly imaginative creatures delineated by Licetus (1665, p. 131 and 256).

Homosexuality existed in all its phases in medieval Islam despite Koranic forbiddance ("Tale of Táj al-Mulúk and the Princess Dunyá," III: 17–18) and among women as well as men. The *Nights* are not such good witnesses to the degree of acceptance of the principal of homosexual love as are the Arabic equivalents of the classical Greek writings—such as The Gulistan of the Sufite Sa'di (Ross, 1823, Chapter V, On Love and Youth). Bestiality, bred of nymphomania, is noticed in "Wardan the Butcher, his Adventure" and "The King's Daughter and the Ape" (IV: 295–299).

Neuropsychiatry

The neuropsychiatric frame of reference of the *Nights* is like that of the Roman and Byzantine writers. Syncope, headache (including migraine), fits, mania, and melancholia, as well as paralysis, blindness, deafness, and mutism are the noted diagnostic complexes of the times. References to migraine occur in various translations of the *Nights*, but the condition itself is not described. Burton employs the word in his translation of "Abu Al-Hasan of Khorasan" (IX: 241).

I have not encountered any clear description of paralysis agitans though the frequent association of tremor with age was, of course, known and is commented upon in "Prince Behram and the Princess, Al-Datma" (VI: 186).

Epilepsy was considered a form of madness ("Ali Nur al-Din and Miriam the Girdle-Girl," VIII: 326) and its signs were quite familiar as was the post-convulsive stupor (or, perhaps, deteriorated state of epilepsy due to extensive cerebral scarring subsequent to trauma) of the condition ("Tale of Ali bin Bakkar and of Shams al-Nahar," III: 207). Treatment was founded upon magical principles ("Harun al-Rashid and Abu Hasan," IX: 203), like those advocated in the Byzantine literature, and continued up through the issuance of "cramp rings" by the much later English monarchs. The two basic psychiatric categories of the period were mania and melancholy. All conditions of mania were not considered due to possession ("The Ebony Horse," V: 28) for which magical remedies were recommended ("The Tale of the Envier and the Envied," I: 124). Thus, the narrator of "The Third Kalandar's Tale" (I: 153) speaks of "mad men or those possessed of an evil spirit:" contrasting the two circumstances (see also "Alaeddin; or, The Wonderful Lamp," XIII: 98). Causes of psychiatric disorders, other than possession, included intoxications (and poisonings) and emotional excesses. Religious transport ("Uns al-Wujud and the Wazir's Daughter", V: 57), the exstasis of the Greeks, was a recognized cause of abnormal behavior but was not considered madness. Hallucinations were evidently not considered particularly unusual ("Alaeddin; or, The Wonderful Lamp," XIII: 119).

Melancholia comprehended not merely psychiatric, depressed states but also mental deficiency ("The Tale of the Melancholist and the Sharper" I: 264, *et seq.*).

The insane were confined in hospitals or monasteries ("The Sleeper and the Waker," I: 18; "History of Mohammed, Sultan of Cairo," XIV: 48; "The Mad Lover," V: 139), or, if wealthy enough to be maintained at home, were chained by the neck in order to keep them from running out the open doors or climbing out of the open windows of the characteristic structures of the locale which were designed for the maximum degree of ventilation.

Conclusions

As revealed in *The Arabian Nights*, medicine, in medieval Islam, combined features common in the Byzantine and Roman European areas with certain local usages due to climate and culture. The Arabic tale-tellers were familiar with the theories of the post-Galenic, Byzantine medical writers, but are fonder of their superstitious nonsense than of such theories. Despite the persistence of the pre-dynastic Egyptian prejudice against cutting of the body and contact with blood, *The Nights* disclose a well developed barber surgeon class. Presumably the development of such a group was an inevitable consequence of the warlike nature of the times. The barber surgeon in the Moslem world was, however, in a social position distinctly inferior to that of his European counterpart and this was a direct consequence of the configuration of the culture of his environment, in this case the above-mentioned Egyptian blood-taboo. Local Semitic influences also appear in the theoretical background of medicine as this was carried over to the general populace and the peculiarities of the geography and climate of the area, where most of the Moslems lived, are reflected in the emphasis upon the conservation of water, of the high incidence of dermal and ophthalmic afflictions, and the substitution of chaining the insane for incarceration in closed chambers, which was the custom in more northerly districts.

Through the transparent glitter, created by the yearning of the story-tellers, we easily discern an almost insufferable existence where life itself was so cheap and insecure that the problems confronting the physician of the day were extreme, fulminating infections, tragically cruel accidents, or firmly entrenched and far-advanced chronic ailments. The situation was not very different in medieval Christian Europe and it is scarcely to be wondered if ill mankind cried directly to Jahveh, Christ, or Allah, from depths so profound that no human physician could elevate the sufferer.

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*Notes from London**

The Annual General Meeting of the Medical Section of the Library Association was held at Chaucer House on February 1st and was well attended. In her guidance of the meeting our new Chairman, Miss M. P. Russell, proved herself worthy in every way of the office which she now occupies and her graceful tribute to the retiring Chairman, Mr. W. J. Bishop, who also retires from the committee according to the regulation governing term of office, was warmly applauded.

After the business meeting Mr. L. T. Morton opened a discussion on the varying practices in British medical libraries with regard to hours of opening, service to readers, loans, and other aspects of organization. This discussion was intended to elicit information and also to indicate ways and means of improving library services generally and possibly of standardizing current practice. Basing his introductory remarks on the answers to a questionnaire circulated by the *British Medical Journal*, Mr. Morton soon made apparent the wide variation among medical libraries in these matters, especially with regard to the hours of opening. From the ensuing discussion it was clear that, although all librarians present were ready to support any extension of services the difficulties in the way of this, of which those concerned with finance and staffing were the most general, were such as could be overcome only by the governing bodies of libraries. Much has been done in the past ten years to establish many forms of co-operation between medical libraries by librarians themselves, but too many external factors were involved to attempt any standardization in the matters touched on by Mr. Morton.

* * *

The appearance of the 1955 *Annual Report* of the Royal College of Surgeons of England reminds us that we have not yet in these notes mentioned the Library's new reading room which has been in use by readers since October 1954. This handsome room is an addition to the main reading room and accommodates 22 readers. The literature of the specialties has been brought together on its shelves, which are of light oak, as are the new chairs and tables. The authorities of the College were moved to invite its Fellows and other kindly disposed persons to subscribe the cost of a single chair or table and these articles of furniture now have the names of their donors carved on them in fine lettering. The rebuilding of the college, which has now necessitated the evacuation of about two-thirds of the periodicals from the stacks, is proceeding apace. The new Great Hall, awe-inspiring by its size and splendour, is already in use and is certainly one of the finest halls anywhere in London.

* Prepared by Dr. F. N. L. Poynter, Librarian, Wellcome Historical Medical Library, London.

There is considerable activity also in the library of the London School of Hygiene and Tropical Medicine where Mr. Barnard has been fortunate enough to acquire a new basement stack-room which is estimated to provide adequate storage for the next twenty years. This fact should console his staff for their labour in reshelving stock, and while these changes are being made the opportunity is being taken to re-arrange the library offices so that they are more conveniently sited both for staff and readers.

At the Wellcome Historical Medical Library the reshelving and refurnishing of the Reading Room has now been completed. The shelving, supplied by Luxfer Ltd., is of steel finished in ivory coloured enamel, and the furniture, which was specially designed and made, consists of tables of unstained beech with blue inset writing tops and tub-chairs covered in blue hide. A new feature which is much appreciated is a "cosy-corner" adjacent to the current journal racks where readers may relax in easy chairs placed around a circular table on a thick pile carpet. At least one reader has been seen peacefully sleeping away an hour or two here. How comfortable should we make our readers? Here is a topic for a lively discussion at some meeting of librarians.

* * *

Talking of readers reminds me that librarians at Oxford, as in so many university libraries, have been troubled by book losses during the past year. This problem has even reached the headlines of that august daily, *The Times*, where, in a long column under the heading "Growing loss of books at Oxford—Proctorial censure of scientists," we read, ". . . if the scientific members of the University as a whole do not improve their standards of behaviour with regard to this library, then the curators will have no choice but to consider drastic and painful measures for the protection of the science collections entrusted to their care. It was an interesting but lamentable fact that the scientists had a standard of library morality which was markedly lower than that of their more humane contemporaries. The losses from the Radcliffe Science Library exceeded the total of the losses from all other parts of the Bodleian put together. . . . Mr. Alexander said the books . . . were mainly concerned with medical and psychological subjects."

Here is food for thought: Are scientists (including doctors) more inconsiderate library-users than others? In the ensuing correspondence in *The Times* the arguments for lending and "reference only" were adequately put, but the scientist, who saw "no reason why journals and the more ordinary books should not be borrowed," thought the non-borrowing statute "deplorable." What he does not state is that the "more ordinary books" are available for loan in the individual college libraries. Librarians who have seen the despair of a reader who has brought printer's proofs to check quotations or references in a non-lending library, only to find that somebody has walked off with the very volume he needs, have less sympathy for people who want to use a library on their own terms.

A new departure for medical society libraries in Britain is the decision just made by the Council of the Royal Society of Medicine which allows any individual to pay a special subscription for the use of the Library only. Hitherto this important medical library has been open only to Fellows of the Society, although visitors have always been allowed to consult works in the Library for a special purpose. The library of the Royal Society of Medicine has also been a generous supporter of the National Central Library in its co-operative scheme for inter-library lending, so that its books have been available to many through their local public library. The new library subscription may well have the effect of reducing the demands made on the library through this scheme.

* * *

Medical librarians in Britain have heard with regret of Miss Janet Doe's decision to retire from her post as Librarian of the New York Academy of Medicine at the end of April. This news reaches us at the same time as the copies of the new and drastically revised edition of *The Handbook of Medical Library Practice*, in the production of which she has taken such a leading part, so that even the most junior of assistants must realise what a great contribution she has made to medical librarianship. No less well known is Mrs. Eileen Cunningham's classification scheme for medical libraries and her tireless work on many international committees, and the news of Mrs. Cunningham's illness, followed by the announcement of her approaching retirement, is an added blow. The heavy tasks which these two stalwarts of our profession have gladly undertaken and fulfilled during recent years are known to us all. None of us could more justly deserve a rest from labour, but let us hope that when they lay aside the cares of office their interest and wise counsel will be available for many years to come to the profession which they have helped to shape. To them both we send our grateful thanks and sincere best wishes.

President's Page

BERTHA BRANDON HALLAM*

President, Medical Library Association, 1956–57

The Medical Library Association has seldom had the opportunity of honoring as its president a person so well-deserving as Miss Bertha B. Hallam. This is not merely because she has been associated with the organization many years, nor because she has held numerous offices and committee positions, though she is, therefore, unusually well prepared to guide its activities. There are not many with Miss Hallam's special talent for offering enthusiastic and loyal support for its projects, sound, capable judgment in dealing with its problems, and friendly inspiration to all of its members.

The University of Oregon Medical School Library has been a member of M.L.A. since 1921, just two years after Miss Hallam became its librarian in 1919. She attended her first Annual Meeting in 1926 and has been present at twenty-one conventions since then. As most of these have been in the East and Midwest, her coming regularly from the Far Northwest represents an unsurpassed interest in the Association. Though these trips were often made at a personal sacrifice, they were never solely for personal interest. She has readily and willingly shared the benefits from the meetings, and also from the International Congress on Medical Librarianship, with other medical librarians in her locality and throughout the entire West. She was the first Chairman of the Pacific Northwest Regional Group. Her M.L.A. assignments have been many, varied, and always well performed. She has twice been elected to the Executive Committee, in addition to serving as a member while she was Treasurer, 1941–46. She was one of the three who signed the Certificate of Incorporation for the Association in 1934. She has been an able member of the Finance Committee most of the time since 1941, ex-officio while Treasurer, and Chairman several years. She has served on planning committees for several conventions, notably that in Portland, 1940, when she was hostess at a most successful meeting. She has been Chairman of the Membership Committee, member of the Gifts and Grants Committee, of the Committee on Standards for Medical Librarianship, and Chairman of the Certification Subcommittee. Her articles have appeared in the BULLETIN, some being papers which she presented at Annual Meetings, and she is the author of chapters in both editions of the *Handbook of Medical Library Practice.*

Miss Hallam's interest and enthusiasm are by no means confined to M.L.A. She is the successful medical librarian at the University of Oregon where she has manifold duties, for the library is actually four in one. It is (1) the

* See also Association News, p. 369 of this issue. [Ed.]

MISS BERTHA B. HALLAM

President of the Medical Library Association, 1956–57

Medical School Library, (2) a medical society library, since it serves and is partially supported by the Multnomah County Medical Society and the Portland Academy of Medicine, (3) a state medical library, as the Oregon State Board of Medical Examiners assigns a portion of its annual registration fees to it and extension service is therefore offered to physicians throughout the state, and (4) a public medical library, for it serves local medical professional workers of all types. Miss Hallam competently organizes her library resources for this varied clientele, and recognition of the value of her efforts in their behalf is shown by the honors which have been accorded her. In 1943 the Oregon State Medical Society presented her with a gold wrist watch in appreciation of her hospitality and to commemorate the 25th anniversary of her service as librarian. In 1952 she was given a silver tea service and elected to Honorary Membership in the Portland Academy of Medicine, the only woman to achieve such a distinction. A lesser honor, to her way of thinking, was her being named "Citizen of the Week" in Portland in 1947. Recently she was named "Woman of Achievement" of Theta Sigma Phi national honor society for women in journalism. She has also been a member of the Executive Board of the Oregon League for Nursing since its establishment, has edited the *Bulletin of the Oregon Library Association*, and, by virtue of her position, is a member of the Library Council of the Oregon State System of Higher Education.

Though she says someone once called her, "the oldest Oregonian he knew," Miss Hallam is not a native of the state. She was born in Minnesota and lived near and in Minneapolis until of high school age when her family moved to Portland. She passed the examination for the apprentice course at the Library Association of Portland (now the Public Library) and worked there before assuming her present position. Indicative of her determination of purpose is the fact that she finished her college work at the University of Oregon in night classes, correspondence courses, and summer sessions, while working full time as the medical librarian. More, she has found time for such things as committee work for the American Association of University Women and numerous activities in the Episcopal Church. Her family and home have been of supreme importance to her. She has lived for many years with one of her sisters and her mother, whose death occurred in 1955. With them she has enjoyed many vacations, oftentimes driving along the rugged Pacific Coast, or spending the time at Cannon Beach, Oregon. She likes to garden but admits there seems to be little time for it, and she does wish she could do something more about the pictorial map collection she once started!

The experience which Bertha Hallam has gained from the many things which she *does* will be reflected in her service to M.L.A. as its president. Those who are privileged to work with her will find her term of office a memorable one because of the kind of person she *is*, a sincere, loyal, cheerful, capable, wise, far-seeing friend.

WILMA TROXEL

Editorials

BETTER MEDICAL LIBRARIES THROUGHOUT THE WORLD

A Guest Editorial

Several months have passed since medical librarians from many countries gathered in Brussels in September, 1955, for the "Journée Internationale Médicale," a day set apart for them amid the multitude of busy meetings which took place during the International Congress of Libraries and Documentation Centers for the discussion of problems germane to their profession. This day afforded an opportunity, all too brief, for medical librarians to meet, chat, and get to know each other, and above all to renew friendships begun at the Congress for Medical Librarianship in London, in 1953. It was my feeling at the London Congress and it is my feeling today that nothing transcends the importance of professional contacts, for only by knowing other librarians personally can we exchange ideas and discuss professional experiences of mutual interest.

A task at the international level, which faces all medical librarians, is to seek every means of promoting the best utilization of existing collections of medical literature and to help develop such collections in all countries. Moreover, it should be their goal to promote improvement in library and bibliographic service for physicians and medical investigators throughout the world. They must also do their part in aiding in the preparation of the best medical bibliographic reference works that can be produced, and to bear in mind that such tools have an international as well as national usage.

In our own young and rapidly developing country, we have achieved much through the enthusiastic aid afforded us by membership in an Association which we believe is among the first special library associations to be organized; therefore, it is natural that we, as members of such an organization, rejoice in the fact that this enthusiasm for better medical librarianship is gaining impetus in all parts of the world. The London Congress on Medical Librarianship and the "Journée Médicale" in Brussels can be regarded as an indication of this professional enthusiasm. This is an important development because never before has there been such a need for better educational facilities for medical librarians in all countries, as well as a vital recruitment program designed to inform young people with an interest in medicine and science of the opportunities afforded by our profession. In order to do this effectively medical librarianship must be promoted nationally, regionally, and internationally; our professional goal should be better medical libraries and documentation centers and better medical library service by well trained medical librarians throughout the world.

A multiplicity of journals, a plethora of articles, the ever-present barrier of language, and the number and complexity of modern bibliographic guides require the services of adequately trained persons, not only in subject fields but in the new methods of bibliographic search, documentation, and library organization. The advent of many comparatively new mechanical devices of all kinds which find use and application in libraries have created a need for the standardization of such media. Standards for the citation of medical articles are also important. How to preserve information printed on deteriorating wood-pulp paper, on which many important journals are printed, can only be solved by finding and using the best of the new media for copying documents. All of this needs the earnest cooperation of medical librarians and medical scientists working together, nationally and internationally, for these common objectives.

How then can we contribute to this mutual effort? It seems to me by helping to promote in every way possible the efforts being made to afford medical librarians an opportunity to meet, discuss, and aid one another in achieving the goals desired. One cannot be too precise in outlining the practical details of procedure to be followed, because these will vary with time, place, and circumstance. Moreover, if we are to help effectively, we must, all of us, in every land, stop to consider how we would feel about this problem if we lived in another country. Why do medical librarians elsewhere need or want things for their medical clientele so different from our own needs and requirements and have to handle the people for whom they work in a manner which may seem unusual to us? One can only accomplish this difficult art of trying to see things from the other person's or other nation's point of view by learning more about each other's professional lives, difficulties, and advantages.

EILEEN R. CUNNINGHAM

THE PURPOSE OF REGIONAL MEETINGS

Anyone who has read the reports of the Medical Library Association's Regional Meetings for the past few years must have been struck by the diversity of their plans. Some groups have met for a few hours in connection with another meeting, while other groups have held two or three day sessions on a scale so grand as to be almost miniature annual meetings. Some regional groups have met only annually; others as much as four times a year. Some have included members from a single city only; others have had Texans going to Alabama and Florida residents flying to Louisiana. Some meetings have concentrated heavily on local and/or younger staff members for speakers; others have imported talent from half-way across the continent. And, as might be expected, some have used elaborate committee set-ups to plan and bring the plans to fruition, while others have allowed one or two people to do all the work.

It is held by some that a trend for uniformity and conformity is spreading in the United States; that our citizens are becoming more timorous and less

tolerant of individuality than were our ancestors in the frontier state of a century ago. The Regional Meetings of the M.L.A. would tend to refute that belief, and we are encouraged. We should hate to see a central group laying down the rules for regional offshoots. The very raison d'être for regional groups and Regional Meetings is that people working in separate geographical areas have problems which are somewhat different from those found in other areas. It would be fatal to the success of such groups to have set plans dictated to them from outside and we hope such an idea will never be entertained by the present organization.

And yet, could there not be more uniformity as to the purposes of regional groups and Regional Meetings? A glance at the pages of the BULLETIN over the years—aided by the Association's new *Cumulative Index*—shows what the originators of Regional Meetings had in mind when the groups were first formed. Miss Jordan summarized the answers to the problem from questionnaires returned by 157 librarians in an early article which has not been superseded.[1] The general consensus at that time was that Regional Meetings should discuss the technical problems of the smaller libraries, that the younger and newer staff members should be encouraged to attend and take an active part in the meetings and that the advantages of getting to know colleagues on an informal and friendly basis should be exploited to the full.

Are these still desirable aims? Does the Association as a whole—now almost twice the size it was when Miss Jordan circularized it—still believe the younger, newer members should be the ones most in evidence at Regional Meetings and that the group, described by one correspondent as "pachyderms and big shots of the industry," should take a back seat? Should the subjects for discussion be the practical ones encountered in the small library; "from running the vacuum to appeasing the Dean" as one person put it? And in doing this can the meetings still be kept free of dictation from without?

Next year will be the tenth anniversary of the discussion which resulted in the first Regional Meetings. Is there need for another such discussion?

[1] Jordan, Mildred. Regional meetings for the Medical Library Association. BULLETIN, 35: 309–320, 1947.

Association News

THE PRESIDENT'S LETTER

To the members of the Medical Library Association, Inc.

It is February and spring is only a promise as this is being written. It will be June and summer when, if all goes well, the gist of these words is spoken in the time allotted to me after I receive the gavel which symbolizes that I serve as President of the Medical Library Association for a year. Due to the exigencies of printing, material for the July issue of the BULLETIN must be written far in advance of the publication date.

Sincerely, I appreciate the honor you have done me in choosing me to serve in this high office and I thank you for the faith you show in that you entrust it to me. Equally sincerely, I am humbled and awed at the thought of the requirements of the position and of trying to follow in the footsteps of those who have served thus before and accomplished so much. Then courage comes with the realization that I do not go the course alone, but that you, each and every member, hundreds of you, are pushing too for the advancement of the Medical Library Association and its projects. It is the strength of union upon which I count and which gives me assurance.

Communication, a word much stressed these days, may be effected by various methods. One line of communication, the library line, is our line. The means by which we, as a group, extend communication through libraries, is the Medical Library Association. As the Association advances and its projects gain momentum so does "our line" advance. Why keep this secret? Why not blazon it from the housetops? I suggest a slogan for 1956–1957. It is—MAKE KNOWN THE MEDICAL LIBRARY ASSOCIATION. Proudly, we can tell of its BULLETIN, its Exchange, its *Handbook of Medical Library Practice*, its *Vital Notes*, its work toward professional and library standardization, its arrangements for international scholarships and visiting foreign students, its placement bureau, its personnel surveys, and all the other projects by which it works to improve libraries. Too few outside the fold know of these. Let us spread the word among physicians, teachers, students, librarians, and all who have an interest in the dispersion of the knowledge of the health sciences or of knowledge in general.

Nor should we hesitate to let people know there is a way they can help toward the extension of communication through the Medical Library Association. This is the way which is opened to them by the opportunity to become an Associate Member of the Association. We can urge them to join and to work with us. Did each one of us secure even one Associate Member it would strengthen the Medical Library Association many fold. Remember the song about the one little candle and the bright world.

Let us go forth and MAKE KNOWN THE MEDICAL LIBRARY ASSOCIATION.

BERTHA B. HALLAM,
President

A NATIONAL LIBRARY OF MEDICINE

STATEMENT OF REPRESENTATIVE OF ASSOCIATION AT SENATE HEARINGS

U. S. CONGRESS

APRIL 10, 1956

I am Miss Janet Doe, Librarian of the New York Academy of Medicine, on whose staff I have served 30 years. I was a member of the 1944 committee which surveyed the Army Medical Library. I am a past-president of the Medical Library Association, and have edited for that Association two editions of its *Handbook of Medical Library Practice.* The Association has delegated me to speak for it here and to emphasize on its behalf the immeasurable value of the Armed Forces Medical Library to its members.

I shall stress the significance of the Library for other medical libraries. They are in the best position to know the literary needs of the medical profession, for practically all the supplying of such needs is done through them. Those needs are many and vital. Above all, the research worker must have access to all that has been written on medicine at any time and in any land. The practitioner, to be good at his work, must read all his life to keep up with advances in diagnosis and therapy. The educator must not only possess the fundamentals of his subject but be abreast of new developments. The student cannot learn without books. All of these groups will continually have to consult some parts of the vast literature that medicine has produced; the periodicals—some 6,000 are currently being issued and the back files mount to tens of thousands—the text books and monographs, hospital and health reports, congress proceedings, government publications, dissertations, etc.

Where is this literature found? Almost wholly in libraries. Individuals cannot afford more than a very few books and journals. They depend on some 400 medical libraries in this country and Canada, of which three-quarters have under 20,000 volumes and sixty percent under 10,000. The majority have what is known as "working collections," that is, a nucleus of the basic publications essential for daily use in hospitals and in practice. For investigators, the literature needed becomes more diverse, and libraries serving them must cover wider and wider fields: in short they must acquire research collections in addition to their basic nucleus. Only a few large collections are essentially "research libraries." It is obvious, therefore, that the great majority of medical libraries must depend for most of their research material on these collections, borrowing books and getting photostats and microfilms from them to supplement their

own scanty supply of literature. Of those few—only 13 have over 100,000 volumes—the New York Academy of Medicine Library is second largest with 300,000 volumes, while the Armed Forces Medical Library is far in advance with 600,000.

The Armed Forces Medical Library is far and away the greatest supplier of research material; first, because it has the largest collection to draw upon, and second, because it is a national institution. It can acquire—much of it free—quantities of foreign books, journals, and reports which other libraries can get only with difficulty, if at all. It receives through the Library of Congress the second copy of all copyrighted American medical books. Most probably it has virtually all of the significant medical literature of the world within five years of publication. This splendid collection is available to any medical man in the country through his local library. Compared to the New York Academy of Medicine Library, the next largest, the Armed Forces Medical Library loaned in 1955, 26 times as many books, supplied 7 times as many photostats, and 338 times as many microfilms. No other medical library approaches this record.

The Armed Forces Medical Library not only meets the book needs of physicians but also furnishes the key to this enormous literature. Current periodical articles are indexed in this Library's monthly *Current List of Medical Literature*; recent books are found in the annual *Armed Forces Medical Library Catalog*, and the older publications of all sorts are listed in the monumental *Index-Catalogue of the Library of the Surgeon General's Office* which covers medicine to 1950. In addition, comprehensive bibliographies on special subjects, such as the "chemotherapy of cancer" and "plasma substitutes," are issued from time to time. All of these publications are of paramount significance because, since this Library receives all of the world's important medical literature, these indexes to its holdings likewise contain it all. No other library has a collection extensive enough to publish such comprehensive indexes. Without them it is safe to say there would be little medical progress.

Now, why is it desirable to place this Library under another authority than the one which has built it up to its present position? For a very specific reason. Its growth and efficiency while in the Army's hands vacillated distressingly between feast and famine. The 1944 Survey, made at the request of its enlightened and disturbed Director, uncovered conditions of flagrant neglect, primarily due to the lack of continuity in direction inevitable under a change of head every four years. Its staff, untrained in librarianship, was pitifully few. Funds for books varied from year to year from a surfeit to zero: in one two-year period only sixteen books were bought (the world's yearly output of medical books, excluding periodicals, may be 6,000–7,000 titles). Cataloging was startlingly inadequate, and the classification system so antiquated that quantities of books could not be found. The whole situation was appalling.

Response to the Survey by the Army authorities was energetic and generous.

Conditions rapidly improved under reorganization and in recent years the Library has resumed its preëminent position. However, it has been found that there is no assurance that the former state of affairs will not recur. Indications, all too pointed, have already appeared that, in spite of heartbreaking efforts by the Library's staff, calamitous action or inaction on the part of the Library's Defense authorities obstructs its progress and even threatens its existence. The budget for the *Current List of Medical Literature* was cut a couple of years ago, reducing its coverage of the literature and restricting its distribution. This publication is the only up-to-date index to current periodicals, and to lessen the number it covers and to make it available to fewer people seriously handicaps American physicians. Instead, if progress is really wanted, it should cover many more journals than it does and be more widely circulated.

But by far the most disheartening occurrence has been the absence of action by the Library's authorities towards securing new quarters for it. In 1944 the Survey wrote in capital letters as its first recommendation: "A NEW BUILDING IS AN ABSOLUTE NECESSITY." Twelve years have passed; efforts have been made repeatedly by the Library's staff to secure action. Last year the Library managed to get $350,000 included in the Navy's budget for building plans—and the money has failed to be used. This magnificent collection, unequalled anywhere in the world, is housed in an 1887 structure, non-fireproof, leaking in roof and windows, with stacks buckling, and jammed with literature of incalculable value to American medicine. The historical part of the collection cannot even be accommodated in the building and has to be stored in Cleveland.

The basic difficulty is the Library's situation under authorities whose compelling interests lie in an altogether different field. The Defense Department must perforce give priority to military matters, and it is inescapable and understandable that the comparatively small item of this Library's needs is overlooked. Where this collection actually belongs is under an authority whose interests are in its field, a *medical* agency, namely, the Department of Health, Education, and Welfare, rather than under the non-medical Smithsonian Institution. There is a general consensus among university medical librarians that medical school libraries fare better under the auspices of the medical school authorities rather than under those of the general university library. We feel, therefore, that this great medical library would receive more understanding treatment under a medical agency than under a non-medical one. There its value will automatically be recognized, its activities will form an integral part of the Department's functioning, and it will be accorded that support which is essential to its proper maintenance and progress. That Department already has close connection with the same clientele this Library now serves, more especially the research workers. The latter should be greatly increased in coming years, —that is, in fact, already happening. With enlargement of research activities,

more demands will be made on this Library and it will need stronger and stronger support. The Department of Health, Education, and Welfare is the logical agency to appreciate and supply this.

Bill S.3430, with modification, will enable this transfer to be done. In its passage, the present Armed Forces Medical Library, by becoming in name, as well as in fact, the National Library of Medicine, the dean of American Medical libraries, will be established on a stable foundation under authorities which may reasonably be expected to promote its welfare and its functions. Further, and most important, it will for the first time have a proper legislative basis for the essential services it has been performing.

NEWS OF FOREIGN FELLOWS

Two visiting medical librarians recently completed fellowships under the Medical Library Association's Committee on International Cooperation. *Dr. Subhadra A. Chitale*, Chief Librarian, Directorate General of Health Service, New Delhi, India, was in this country from March until August 1955. She spent the spring term in the George Peabody College, School of Library Science and then visited libraries in the south, the central states, and in the east. *Miss Hwei Wen Cheng* of the Medical Library of the Presbyterian Hospital, Taegu, Korea, studied at the Peabody Library School during the 1954–55 term and took the course in Medical Librarianship at Emory University during the summer. While in Nashville she spent much of her time at the Vanderbilt University School of Medicine for practical study and observation. Although she has completed her fellowship, she is now working in the Tulane University School of Medicine Library for practical experience.

Mrs. Nair Marques Lisboa Freitas, Librarian, University of Minas Gerais, Faculty of Medicine, Belo Horizonte, Brazil, received a travelling fellowship beginning in September 1955. She spent six weeks at the Cornell University Medical College Library, and has been visiting medical libraries throughout the east and south with extended stays at New Orelans and Nashville.

For the 1956–57 term we expect to have two fellows who will pursue library school courses. *Miss In Sook Kim* of Seoul, Korea will study to become the Librarian at the Seoul National University Medical School. *Dr. Michael Alroy* of Jerusalem, Israel, will study and travel preparing to become the Librarian at the Jewish National and University Library. Arrangements are underway to enroll these two fellows in library schools and to schedule library visits.

WASHINGTON, D. C., AREA MEDICAL LIBRARY GROUP

The fourth annual meeting of the Washington, D. C., Area Medical Library Group took place Saturday, March 31, 1956. The morning session was held at the Clinical Center, National Institutes of Health, Bethesda, Maryland, and the

afternoon session at the Howard University Medical Center Library, Washington, D. C. Approximately 100 people from the District of Columbia and the surrounding states of Maryland, Virginia, and West Virginia attended the meeting.

Following a welcoming talk by Dr. Murray C. Brown, Chief, Clinical & Professional Education Branch, NIH Clinical Center, the main portion of the morning program followed, consisting of a symposium on "Recent Developments and Future Plans of Washington, D. C. Area Libraries of Special Interest to Medical Librarians" under the chairmanship of Dr. Sanford V. Larkey, Welch Medical Library, Johns Hopkins Medical School, Baltimore, Maryland. The following large organizations and categories of libraries were represented:
Library of Congress, Mr. L. Quincy Mumford, Librarian of Congress; Armed Forces Medical Library, Lt. Col. Frank B. Rogers, Director; National Institutes of Health, Mr. Scott Adams, Librarian; Medical School Libraries, Mrs. Breed Robinson, Librarian, School of Medicine, Dentistry and Pharmacy, University of Maryland, Baltimore; Hospital Libraries, Miss Margaret Hannigan, President-Elect, Hospitals Division, American Library Association; Veterans Administration, Mr. Henry Gartland, Director, Library Services; and Military Medical Libraries, Mrs. Rhoda Fogle, Librarian, Technical Library, Fort Detrick, Frederick, Maryland.

After a tour of the Clinical Center Library and luncheon in the cafeteria, the meeting moved to the Howard University Medical Center for the afternoon session, convening in the new Medical Center Library located in the Howard University College of Dentistry. Dr. Russell A. Dixon, Dean, College of Dentistry, was on hand to welcome the group; also present throughout the afternoon meeting was Dr. Robert F. Jason, Dean, College of Medicine. Mr. Taine conducted the business session. The following Steering Committee for the next meeting was unanimously elected: Miss Elizabeth Adkins, University of Virginia, Medical School, Charlottesville, Virginia; Miss Edith J. Daniel, Howard University Medical Center, Washington, D. C.; Mrs Rhoda H. Fogle, Fort Detrick, Frederick, Maryland; Mrs. Ruth H. Grenagle, U. S. Public Health Service, Baltimore, Maryland; Mr. John M. Whittock, Jr., Welch Medical Library, Johns Hopkins Medical School, Baltimore, Maryland. Alternates were: Miss Frances K. Fox, National Institutes of Health, Bethesda, Maryland; Mr. Samuel Lazerow, Armed Forces Medical Library, Washington, D. C.; and Mrs. Patricia Shaw, Veterans Administration Hospital, Perry Point, Maryland.

A film on "Frenquel; a New Blocking Agent Against LSD Psychosis" was shown to the group, after which small groups were conducted on tours of the Library and College of Dentistry. The meeting ended with tea in the College Lounge.

SOUTHERN REGIONAL GROUP MEETS IN ATLANTA

A two-day meeting of the Southern Regional Group of the Association was held at the Emory University Medical School Library in Atlanta, Georgia, on April 13 and 14. Approximately 35 members, from the southern states stretching from Florida to Mississippi to Texas to the Carolinas, took part in the program, which included a discussion of the responsibilities for service of the national library of medicine by Miss Estelle Brodman, a talk on Confederate Medicine by Dr. Phinizy Calhoun, Jr., and three round table discussions (on public services led by Miss Mildred Crowe; on technical services led by Miss Dorothy Long; and on administration led by Mr. Frederick Bryant). Tours of Atlanta and its libraries were arranged, and luncheons and teas were tendered the group.

News Items

NATIONAL LIBRARY OF MEDICINE

S.3430, a bill "to promote the progress of medicine and to advance the national health and welfare by creating a National Library of Medicine" was submitted to the Congress on March 13, 1956. The bill, sponsored by Senator Lister Hill and Senator John F. Kennedy, was referred to the Committee on Labor and Public Welfare. Copies of the bill, and copies of the speech by Senator Hill in introducing the bill, are available, and the text of the bill has been reprinted in the March issue of the AFML *NEWS*. The text of the Medical Library Association's official statement on the Bill can be found on page 370.

7TH CLENDENING LECTURES AT KANSAS

Dr. Lloyd G. Stevenson, Associate Professor of the History of Medicine and Honorary Librarian of the Medical Library at McGill University, presented the seventh series of the Logan Clendening Lectures on the History and Philosophy of Medicine at the University of Kansas Medical Center. His lectures on "Poison, Infection and Contagion" and "The Story of Curare" were given on April 24th in Lawrence and on April 25th in Kansas City.

ACQUISITIONS POLICY OF THE NATIONAL MEDICAL LIBRARY

A symposium was held on April 12th at the Armed Forces Medical Library on the subject "Acquisitions Policy of the National Medical Library." The program of the morning session included: Opening remarks by Mr. Samuel Lazerow, Assistant Librarian for Acquisitions; Introduction and statement of the problem, by Lt. Colonel Frank B. Rogers, Director; The problem from the viewpoint of library technology, by Mr. Verner W. Clapp, Library of Congress; The problem from the viewpoint of clinical medicine, by Dr. Benjamin Manchester, George Washington University; and The problem from the viewpoint of medical research, by Dr. Homer W. Smith, New York University.

After luncheon served in the library the symposium was reconvened for the afternoon program: The problem from the viewpoint of medical history, by Dr. Richard H. Shryock, Johns Hopkins University; The problem from the viewpoint of strategic intelligence, by Mr. Frederick G. Kilgour, Yale University; The problem from the viewpoint of general historiography, by Dr. Arthur E. Bestor, Jr., University of Illinois; and a Summary by Mr. Keyes D. Metcalf, Rutgers University.

MEDICAL SECTION, LIBRARY ASSOCIATION (LONDON)

The Medical Section, Library Association, London, held its annual general meeting at Chaucer House on February 1st. This was followed by a discussion

on "Facilities for Readers: Variations in Different Medical Libraries," which is based on the survey of Postgraduate Library Facilities carried out by Mr. L. T. Morton on behalf of the *British Medical Journal*.

CHAPTER MEETINGS, BIOLOGICAL SCIENCES, SLA

The joint meeting of the New York Chapter of the Biological Sciences Division and the Hospital Group, Special Libraries Association, was held in January at the New York Public Library to hear Mr. Herbert H. Marks, Manager of Medical Statistics, Metropolitan Life Insurance Company, on the subject "Medical Statistics: What Librarians Should Know."

The February meeting of the Baltimore Chapter of the Biological Sciences Division, Special Libraries Association, was held at the Baltimore library of the U. S. Department of Health, Education and Welfare with Miss Anita Tannan, Librarian, as hostess. Mr. Eugene Hess of the Training Division of the Bureau of Old Age and Survivors Insurance spoke on the organization and operation of the Bureau and its Accounting Operations Division, showing in a tour of the building the vast assemblage of various types of IBM machines used in keeping the Social Security records of 123,000,000 Americans.

SUMMER COURSE AT ILLINOIS

The University of Illinois Library School is giving a course entitled Medical Literature and Reference Work, L. S. 439, taught by Dr. Frances B. Jenkins from June 25 to July 21. Intensified during a four-week period the course was planned in order that medical librarians in the field could take advantage of it. A three-day field work program at the University of Illinois Library of Medical Sciences in Chicago terminates the course.

ARMED FORCES MEDICAL LIBRARY CLASSIFICATION

The *Army Medical Library Classification* 1st edition, 1951, is now out of print, and because of the continuing demand, a new edition has been prepared and is planned for publication in July. Some revision of the schedules has been effected to provide for concepts not previously accommodated, terminology has been brought up to date, and more directives to guide the classifier have been inserted. Publication details will be announced in the AFML *News* as soon as they are available.

WESTERN RESERVE UNIVERSITY OFFERS DOCTORATE IN LIBRARY SCIENCE

The new program at Western Reserve University leading to the Doctor of Philosophy degree in library science includes 29 semester hours of graduate and advanced courses or seminars in library science, 22 hours of graduate courses in the field or fields of subject specialization, 15 hours of graduate

courses in other subject fields, 12 hours of original research including a dissertation, and regular Graduate School requirements as to languages, comprehensive examinations, etc.

JOINT COMMITTEE ON LIBRARY WORK AS A CAREER

The Joint Committee on Library Work As a Career was formed in 1947 as a result of a conference called by the American Library Association to discuss recruiting. It functions to plan, coordinate, and carry out the profession's recruiting. It has as members representatives from eighty-eight recruiting groups, usually chairmen of the local association recruiting committees and appointed by the association president. It is dependent for financial support upon gifts from member associations and upon the sale of its own recruiting materials. It publishes the *Clearing House Newsletter*, holds semi-annual meetings, studies recruiting problems, mans a booth at the annual convention of the American Personnel and Guidance Association, publishes a leaflet on librarianship *Paging Your Future*, and is compiling an Action Manual for Library Recruiters. The current chairman John F. Harvey, Pittsburg (Kansas) State College, states that the Committee welcomes information and calls for assistance from library recruiters in the field in order that it may be of greater service to the profession.

NEW LIBRARY AT GEORGE WASHINGTON UNIVERSITY

The George Washington University Medical Library moved to 1339 H Street N.W., Washington, D.C. from the building next door in September. It is located on the first floor of the old University Cancer Clinic building remodeled for the Medical School.

CHARLES H. LAND MUSEUM

The Trustees of Columbia University have named the Dental School Museum, the Charles H. Land Museum as a memorial for Dr. Charles H. Land, pioneer in the use of porcelain in dentistry. Dr. Land was the grandfather of Charles Lindbergh. Dr. Curt Proskauer is Curator.

HERNEK, MEYER AND COMPANY

Saul Herner and Robert S. Meyer, formerly of the Atlantic Research Corporation, announce the formation of the firm Herner, Meyer and Company to conduct a program of services in the planning of libraries, the design of information systems, and the organization and conduct of informational surveys. The firm is located at 2625 Eye Street, N.W., Washington 7, D.C.

LIBRARY PLACEMENT EXCHANGE

Library Placement Exchange is a specialized placement service in the library profession. This journal of comprehensive, centralized job advertising gives

timely reporting in 24 issues and free listing rights for its subscribers. Complimentary issues and detailed information are available by writing LIBRARY PLACEMENT EXCHANGE, PO Box 172, Benjamin Franklin Station, Washington 4, D.C.

ASLIB INDEX TO TRANSLATIONS

The Aslib Index is a co-operative card index to unpublished scientific and technical translations, compiled under the auspices of the British Commonwealth Scientific Office. English translations made in the United Kingdom are reported to Aslib (Association of Special Libraries and Information Bureaux, 4 Palace Gate, London), and cards are prepared for inclusion in all copies of the index. The translations themselves are not deposited at Aslib.

Similar centres in Canada, South Africa, India, Australia and New Zealand prepare cards for English translations made in these countries, and two copies of every card are sent to each country. Under a recent agreement, the Library of Congress cards for National Science Foundation Russian-English translations are also sent for filing in the index.

The index is intended to act as a check list of unpublished translations already in existence. Arrangement is therefore in two parallel files, under authors, and under journals or other references. Many organizations check with the index before starting work on a new translation; and over one hundred bodies, including government departments, research associations, colleges, and firms, supply Aslib regularly with lists of translations made.

By June 1955, there were about 13,000 entries in the Index, and over 7 per cent of the inquiries received were answered by translations already recorded. The main languages represented are German and Russian, but translations from any language and on any scientific subject are included. A translation that has been recorded may be available on loan; otherwise Aslib undertakes to obtain a photocopy, the charge being 1s.6d. per page.

—*Unesco Bulletin for Libraries*, 10:21, 1956

PROPOSED BIBLIOGRAPHY OF MEDICAL CONGRESS PUBLICATIONS

With the concurrence of the World Health Organization, Unesco has awarded the Council for the International Organizations of Medical Sciences (CIOMS) a contract to cover part of the latter's anticipated expenses in collecting material for a bibliography of the records of congresses on medical and closely related fields of science which are of international interest and have taken place previous to 1955. It is intended to publish the whole or part of this. Account will also be taken of symposia, references to which might be included in an appendix. Should the number of earlier congresses prove too large to warrant their inclusion, the project may be limited to the past 50 years. The intention is that all congresses shall be listed, including those which have not issued

publications. In the absence of proceedings or similar substantive publications, references will be made to shorter accounts or abstracts which have appeared in medical journals. With this object the Armed Forces Medical Library, Washington (U.S.A.) has handed over, for selection and incorporation, the material it collected over a period of years. The work will be done in London where a card index has been started, the arrangement of which is to be alphabetical under main subject headings. It is planned to complete the selection of material under headings beginning with the letters A to M during the first half of 1956, after which a decision will be taken as to the scope of the intended publication and its probable date.

—*Unesco Bulletin for Libraries*, 10:22, 1956

SUBSCRIPTION TRANSLATIONS OF SOVIET JOURNALS

Consultants Bureau of New York has announced a program of 30,000,000 words a year of translated Soviet periodicals in all branches of science and technology on a yearly subscription basis. Inquiries should be directed to Consultants Bureau, 259 West 14th Street, New York 11, N.Y.

MAKERERE COLLEGE PUBLICATIONS AVAILABLE

Copies of Makerere College's *Medical Library Bulletin and Accessions List* and its *Annual Report, 1954* are available by writing Mrs. D. E. Milburn, Medical Librarian, Makerere College, P.O. Box 2072, Kampala, Uganda.

MENTAL HEALTH BOOK REVIEW INDEX

The first issue of the Mental Health Book Review Index, which indexes reviews of books in the fields of psychology, psychiatry, psychoanalysis, and related subjects appearing in fifty subject journals, is available without charge to librarians as Supplement to vol.7, no. 3, Jan./Feb. issue of *Psychological Newsletter*. The *Index* to be published semi-annually is created and edited by the Subcommittee on Book Appraisal of the Adult Education Board of the American Library Association. Communications should be addressed to Miss Lois Afflerbach, Paul Klapper Library, Queens College, Flushing, Long Island, New York.

HOW TO PREPARE AN INTERNATIONAL MEDICAL INDEX

19th Century Views

A contemporary reviewer of Ploucquet's *Literatura Medica digesta* . . . Tübingen, Osiander, 1814 complains (Med.-chir. zeitung, 1815, 1: 202) that medical literature is growing so large no one person can hope to index it. What is needed, he says, is a group of people in many countries who have access to a large number of libraries, journals, newspapers, and the like who should pool their indexing work. But here we come upon difficulties, says the reviewer

("aber–hic acqua haeret"), for "The Frenchman makes many compliments, promises everything, and does nothing or else excuses himself on the basis of time (mostly lack of it); the Italian for the most part, is incapable of such labors, or makes commercial demands; the Englishman bothers himself little about the matter outside his own island, but merely asks 'how important is the man?' and the German, who used once upon a time to be sought for such literary work, is now ignorant of it because of the superficiality of his method of study or by indolence, although used to Almanachs, newspapers, and journals, is repulsed by so dry an occupation."

BIBLIOGRAPHIES AVAILABLE UPON REQUEST

The following photo-offset bibliographies are still available upon request from the Gift and Exchange Section, Armed Forces Medical Library, 7th and Independence Avenue, S.W., Washington 25, D.C. Copies will be distributed as long as the supply lasts.

1. The Pituitary-Adrenocortical Function: ACTH, Cortisone and Related Compounds. 1950. 3,341 citations.
2. Plasma Substitutes; Except Those Derived from Human Blood, 1940–1951. An annotated bibliography. 1951. 888 references.
3. Pathology and Physiology of Burns, 1942–1951. An annotated bibliography. 1952. 611 references.
4. Bibliography of Military Psychiatry, 1947–1952; literature relating to U.S. Armed Forces with selected references relating to British Forces. 1953. 545 entries.
5. Gas Gangrene and Gas Gangrene Organisms, 1940–1952. An annotated Bibliography of the Russian Literature, 1940–1952, and the Non-Russian Literature for 1952. 1953. 324 references.
6. Slavic Medical Bibliographies, 1945–54. June 1955. 57 pages.

Some mimeographed compilations which have proved popular in the past and are now available are:

1. Fat Embolism. A Preliminary List of References Chiefly Covering the years 1940–1950. 1952. 135 references. Partially annotated.
2. Fat Embolism. Supplement covering 1951–1952. 1953. 38 references.
3. A Bibliography of Military Medicine Relating to the Korean Conflict, 1950–1953. 1953. 194 references.
4. Bibliography of Military Medicine, U.S. and Foreign, 1950–55. Sept. 1955.
5. References on Military Psychiatry, 1952–55. January 1956.

PERSONAL NOTES

Miss Barbara Beckner is now librarian of Florida State Board of Health Library.

Mr. Charles C. Colby, III, assumed his new duties as librarian of the Boston

Medical Library on April 2d. Prior to his recent position as medical librarian and assistant professor of medical bibliography at the University of Missouri, Mr. Colby served for five years as reference librarian at the Boston Medical Library.

Miss Margaret C. Hannigan, Librarian, Patient's Library, Clinical Center, National Institutes of Health, Bethesda, Md., spoke on Bibliotherapy at the meeting of the Institution Libraries Section of the New York Library Association at the Lake Placid Club in October.

Mr. and *Mrs. Frank Jerabek* (formerly *Helen Hlavac*) are the proud parents of Charles Frank, born February 26th. They are living at 11 Coyle Place, Yonkers, New York.

Miss Rosanna Phillips is the new librarian of the American Cancer Society, Medical and Scientific Library, 521 W. 57th Street, New York.

Mr. F. N. L. Poynter was admitted a Ph.D. of London University in November for his thesis on Gervase Markham. On February 15th Dr. Poynter gave a paper to Aslib on "Source of information in the history of science."

Miss Jeanne M. Reilley formerly with the American Medical Association Library is now at the University of Pittsburgh Medical-Dental Library.

Miss Margaret S. Riddle is librarian of the medical-pharmaceutical library at Lanpar Company, pharmaceutical manufacturers of Dallas, Texas.

Miss Vera Warburton is a new assistant in the George Washington University Medical Library, Washington, D.C.

Mrs. Creola D. Wilson is now assistant librarian at the Medical Library, St. Elizabeths Hospital, Washington, D.C. She was formerly with the Technical Information Division, Library of Congress.

Miss Ethel Winarsky is medical librarian of William Douglas McAdams, Inc., Medical Library, 130 E. 59th Street, New York.

Book Reviews and Journal Notes

Barnard, Cyril C. *A Classification for Medical and Veterinary Libraries.* 2d edition. London, Lewis, 1955. viii, 279 p. 84s.

Progress in medicine and the resulting avalanche of medical literature in the past twenty five years have pointed up the inadequacies in the existing medical classifications. All required major changes, realignments, expansions, and revisions, not only to provide for the new material but also for much of the older material which, because of changing concepts, no longer fitted in the areas to which it had been assigned earlier. As a result most medical classifications in use have been revised or are in the process of being revised.

The Barnard classification, originally published in 1936 to serve the needs of the Library of the London School of Hygiene and Tropical Medicine, is among those which have received a thorough revision and expansion. The second edition has more than twice as many topics in the main schedules as the first, and with the added use of the eleven auxiliary schedules, there seems to be no limit to the number of class-marks which can be achieved.

The nomenclature of diseases is in the main that of the Royal College of Physicians of London, and the system of notation for the entries, all of them specific, is an alphabetical one, with the exception of Table 2, the local list, which employs arabic numerals.

Of the major changes the following are the most significant: Class J, Bacteriology, which now includes Spirochetes; Class K, which now includes the new science of Virology and the still undefined Rickettsiae; Class H, which now contains Immunology, transferred from Bacteriology, and Infectious Diseases, formerly in UD; and Class L, Parasitology and Protozoology. Two new classes have been added, BR for Radiology and Atomic Energy, and UA for Aviation Medicine.

Other specialties have been rearranged in the interest of modernization and logical sequence, particularly Veterinary Science. Diseases and parasites of domestic animals are now located near related diseases and parasites of human beings.

This edition continues to give primary consideration to the highly specialized collections of the London School of Hygiene and Tropical Medicine, as did the first. However, in view of the demand for this classification in medical libraries with relatively smaller collections (31 of them are now using this classification), a condensed version of the original schedule was prepared on the basis of a survey of the material in two such libraries. This alternative schedule is placed parallel to the original for easy reference.

To assist the user of both the original and alternative classifications the

extensive introduction explaining the schedules should prove very helpful. In addition, there is the "Register of Changed Class-marks" for the use of the libraries making the change-over from the first to the second edition, a detailed general index (39 pages), an index of parasites, and an index for each of the eleven auxiliary schedules or tables.

The author has included every possible device to facilitate the job of classifying medical collections of any size, and is to be congratulated on the achievement of such a colossal undertaking.

SARAH G. MAYER

U. S. Armed Forces Medical Library. *Catalog; a Cumulative List of Works Represented by Armed Forces Medical Library Cards 1950–1954.* Ann Arbor, Mich., J. W. Edwards, 1955. 6 vols. (Vols. 1–3: Authors; Vols. 4–6: Subjects) $64.00

The Surgeon-General's Library *Index-Catalogue* was the last of the great nineteenth-century library catalogs to index both books and periodicals. That it would be superseded in this century was inevitable because of the urgency of research demands. Now with the publication of the five-year cumulative edition of the Armed Forces Medical Library *Catalog*, its succession has been assured according to the current speed-up pattern.

This new catalog performs a double function. Together with the *Current List of Medical Literature* it continues the Armed Forces Medical Library bibliographical record begun in 1880. Secondly, it serves as a supplement to the Library of Congress catalogs for the field of medicine and related subjects. Its publication is the result of cooperation between these two libraries. Thus the AFML *Catalog* preserves intact the structure of national bibliographical service that is essential to American research.

The 1950–1954 cumulation is a list of the works cataloged at AFML during the period covered. It contains about 110,000 author entries and 80,000 subject entries reproduced from multilithed cards in four columns to a page. Since AFML is in the process of recataloging its collection the *Catalog* includes older titles, foreign titles, and many serials, both old and new, not yet listed in other library catalogs. The inclusion of all materials of medical interest since 1951 and of Americana and pre-1801 titles from the History of Medicine Division in Cleveland, the large number of microfilms, theses, and pamphlets, the incorporation of titles from the Slavic and Japanese collections, and the extensive practice of making analytics for serials and monographic sets enlarge the uses of the *Catalog* beyond its defined scope. It is interesting that one librarian in a large university library, who consults the *Catalog* chiefly for works in the preclinical sciences and the borderline fields, also finds the coverage comprehensive and considers the catalog, to a very appreciable extent, an original contribution to American bibliography.

The mechanics of the *Catalog* are clearly explained in the introduction. As in the *Index-Catalogue* the publications of corporate bodies are entered under the name of the body in use at the time the publication appeared, and each periodical is entered under the title in use at the time of issue, with connecting notes, so that the reader can go directly to the title as it is cited. With the exception of civilian hospitals, cross-references have been liberally made. The use of contents notes shows a rare understanding for the times when they are needed. All added entries are included; they are in the form of cross-references with full imprints and, when necessary, notes to explain their relation to the work. The Library of Congress rules have been modified slightly to provide a more practical and useful treatment of materials. The most notable variations in cataloging practice will be found in the Subject Catalog. Subject headings, with the exception of essential categories of books, have been limited to titles published since 1925 because the older works have, for the most part, been superseded and are fully indexed in the *Index-Catalogue*. Subjects are uniformly divided by place, and place subdivision is made upon a pragmatic basis. The user will soon note that the subject heading structure differs somewhat from that for general libraries. It is tighter, more logical, based upon an authoritative analysis of subject categories, and adapted to the biomedical point of view. Under each subject the complete card is given with the tracings. This is an advantage to the user because the subject added entries form an integral part of the description, taking the place of scope annotations. Throughout the *Catalog* the cataloging has been motivated by the exercise of intelligence rather than by subservience to rules and precedent.

By this time the annual volumes have already demonstrated the value of the AFML *Catalog*. The reviewer sounded out several librarians. They pointed out its usefulness for verifying titles speedily, for finding bibliographies, biographies, congresses, for locating copies for microfilming and other interlibrary loan purposes. One library uses the *Catalog* as a supplement to its own catalog for the analytics. Experience shows that the *Catalog* soon becomes a close working companion to the cataloger and the reference worker along with the other library catalogs. The use any library makes of the *Catalog* will depend, of course, upon the training of the individual librarian and even more upon the policy of bibliographical coordination practised within the library organization, but its potentialities for saving time and costs and for use by the public appear to be many for inventive minds.

The appearance of the AFML *Catalog* at a time when the battle for human survival is being fought in the research centers is a welcome one. It takes its place among the finest by modern standards; it is indispensable; and it is in the great tradition.

GEORGE C. C. SCHEERER

Symposium on Medical Libraries in Relation to Medical Education. *Journ. Med. Education*, 30: 489–532, September 1955.

The Association of American Medical Colleges has indicated in various ways its recognition of the fact that literature makes a valuable contribution to, and is an essential component of, an adequate medical education. Notwithstanding this recognition, only eight papers on the subject have appeared in the official journal of that organization in thirty years of publication. The symposium on medical libraries, to which the entire Part I of the September 1955 issue is devoted, can therefore be considered a landmark in the progress of medical school libraries, and those who were responsible for securing consideration in this manner are to be commended. Medical Librarians may take encouragement from the knowledge that a succinct statement of their problems, achievements, and latent potential is here presented in the *Journal of Medical Education*, a publication which carries the message directly to the faculty and administrators best able to aid medical school libraries and who, in turn, benefit most from a successfully administered library program.

In the foreword Dr. Chauncey D. Leake establishes the role of libraries in the educational process and suggests some of the problems facing medical libraries. The nine articles included in the symposium outline the trends in medical education as they affect libraries, the essential characteristics of a medical school library including services, scope, its influence in graduate education, and the cultural growth of the student, the problems involved in bibliographic control, and the place of the Armed Forces Medical Library as a coadjuvant in medical education.

Two papers should be basic reading for every administrator who is in any way responsible for the medical library program, be he Dean, Director, or faculty committeeman. The first of these is Miss Mildred R. Crowe's crisp, graphic explanation of the various facets of professional librarianship. Her discussion of the library staff together with a descriptive analysis of the services to be reasonably expected of the library and the potential services evolving from appropriate cooperation will give inspiration to those who seek to make vital the contribution of the library to medical education. Indeed, here is a checklist for an administrator who would evaluate an existing or proposed medical library program. The second paper should be called to the attention of every individual concerned with education and research in the health sciences. Mrs. Eileen R. Cunningham solicits attention to the need for improving bibliographic services. This well documented article brings into sharp focus the problem which has confronted medical librarians with increasing gravity over the last ten years. It reviews the steps taken by library organizations in an attempt to resolve the situation. Her appeal for understanding and support must reach the medical profession and allied groups.

All writers arrive at the same conclusion that is so ably stated by Miss

Crowe. "The increased demands upon the library have emphasized the fact that highly trained personnel are needed to direct and service it. The training, ability, and experience of the librarian and his staff determine to a great degree the scope of services which the library can offer." In other important respects, however, the authors of the separate papers express not only differences of opinion, but of fact. Perhaps the degree of inadequacy in indexing of medical literature is an unknown quantity, thus accounting for conflicting statements on this point. The picture of "most medical school libraries" presented by one author is in direct contrast to the description of the collections and services given by those actually engaged in medical school library work and the author of the foreword.

Whether or not the seed confidently sown in the symposium will grow and bear fruit depends largely upon the cultivation given it by the medical school librarian and his staff. That it appears in the *Journal of Medical Education* constitutes an acknowledgement and attestation of the reality that the library is an integral part of the medical college program. If the future presents further opportunity for librarians to write for the medical faculty, it would seem advisable to refrain from discussion of internal library management and to concentrate upon those problems which require the aid and cooperation of the medical profession for solution.

BERNICE M. HETZNER

Malclès, L. N. *Bibliographical Services throughout the World. First and Second Annual Reports* (1 September–31 August), 1951–52, 1952–53. Prepared in accordance with the recommendations of the International Advisory Committee on Bibliography. [Paris] Unesco [1955] 352 p. (Unesco Bibliographical Handbooks, 4)

—— *Third Annual Report*, 1953/54 (1 September–31 August) by R. L. Collison. [Paris] Unesco, 1955. 93 p. (Unesco/CUA/72)

Bibliography is the basis of all library work, but just as one takes the foundations of the house one lives in for granted so librarians and those who use libraries take their bibliographic basis for granted, until something happens to call it to attention. Then, perhaps for the first time, it is brought home that bibliographical services don't just happen, that they cannot be assumed to be complete or accurate, up-to-date or relevant, and that like most human enterprises they illustrate every degree of irrationality, unreliability, incompleteness, duplicativeness, and general inefficiency, if—as is not always the case—they even exist.

Occasionally some set of circumstances calls especial attention to the defects in the world's bibliographic apparatus. World War II provided such a set of circumstances, for its end found the scholarly world to a large extent ignorant of progress during much of the previous decade and deprived of many of the

bibliographical services upon which it had previously relied. Accordingly, when UNESCO was established in 1946, one of the most urgent demands made upon it from all quarters, by scientists, philosophers, historians, educators, artists, and librarians, was to bring order into the chaos of bibliographic work.

This was a tall order, and UNESCO cannot be blamed if it moved slowly. In retrospect, its moves seem to have been well advised. It commenced with particular disciplines—medical abstracting was the first subject selected—and moved gradually toward general subjects, reaching science as a whole by 1950 and general bibliography by 1951. At each stage it was able to find special groups to take off some of the load. Thus, for science abstracting there has been established a Science Abstracting Board under the aegis of ICSU (International Council of Scientific Unions) which promotes interchange of abstracts and other information among science abstracting services[1]; for the social sciences there is an International Committee for Documentation in the Social Sciences which has among other things stimulated the establishment of *International Political Science Abstracts* and *International Social Science Bulletin* (for the further activities of this committee see the work under review); and so on. But UNESCO has been left with the residual problems: how to promote coordination, completion, elimination of needless duplication, etc., in bibliographical work generally.

To assist it in approaching these problems UNESCO has established an International Advisory Committee on Bibliography which meets biennially to recommend measures to be undertaken with the very limited funds available. In 1951 it seemed to the Committee that one of the most important things was to assemble information as to the status of bibliographic work in the various countries of the world, with the dual purpose of establishing bench-marks from which progress might be measured and of providing a comparative conspectus which might reveal problems requiring attention and at the same time encourage such attention on the part of the countries themselves. Accordingly, the Committee recommended that there be published at five-year intervals a summary report on bibliographical services throughout the world, with supplemental reports in the intervening years.

The two volumes before us are examples of both kinds of reports. The first is an octavo volume, printed from type. The second is a "main series" document, reproduced from typewritten copy. Actually, because of the experimental nature of the first report and the resultant delays in assembling and editing it, it was found possible to print the first annual supplement with the basic compilation.

The data, arranged by continent, and thereunder by country, has in each case been supplied by national bodies, the formation of which UNESCO has encouraged to serve as national bibliographical planning groups. In some

[1] Science, 123: 423–4, March 9, 1956.

countries these groups have genuinely national authority, such as the French National Bibliographical Committee, which was established by ministerial decree in 1952, and of which the national librarian is chairman. In the United States, by contrast, there is no recognized bibliographical planning group; however, the American Library Association has, in an effort to provide a means for responding to UNESCO's efforts, expanded its Bibliography committee into a Board on Bibliography, and has invited representatives of other national library associations to participate. Meanwhile Mrs. Kathrine O. Murra of the Library of Congress has for the last several years assembled the data with which the United States is represented in the reports under review.

What do these reports tell us? Taking France again as the example, the basic report gives details regarding the work of the National Bibliographical Committee and also regarding the Interministerial Committee on Documentation; it reports on developments in catalog card printing, union catalogs, standardization, professional training in librarianship and documentation, union lists of serials, coordination of translations, and listing of official publications; and it provides a list of the principal bibliographical publications of 1951–2. This is quite a report! Similar reports, varying according to circumstances, are presented for 38 countries, and there are overall accounts of developments in national bibliographies, union catalogs, and the formation of national committees.

With the experience gained from the first report, UNESCO submitted a questionnaire in order to standardize the submission of data for the second, asking, among other things, for a report on gaps in each country's bibliographical apparatus. This questionnaire brought reports from 41 countries as well as from the UN and 8 of its specialized agencies, and from a score of other international organizations. Thus one can find easily for the first time what FID is up to, what bibliographic developments are taking place in Honduras, or what were the principal bibliographic publications of Israel or the International Postal Union. An analytical table provides a checklist showing the existence or non-existence in each country of principal kinds of bibliographic service, such as national bibliographies, lists of new periodicals, of theses and official publications, and of bibliographic services in the principal disciplines. The volume containing the basic and the second report is exhaustively indexed.

This first volume represents the editorial work of Mlle. Malclès of the Sorbonne, whose labors, especially in view of the initiatory difficulties, have been heroic. The third report has been assembled by the reference librarian of the Westminster Public Libraries in London. He used the same questionnaire adopted for the second report and was able to secure responses from 62 countries, which means that information is here available from 23 countries not previously reported, such as Algeria, Australia, Czechoslovakia, Poland, and Rhodesia. Among the most interesting evidences of planning in regions previ-

ously poor in bibliographic services are those contained in the reports from Ceylon and the British West Indies. Mr. Collison has also submitted a special report on cartographic bibliography.

It remains to be seen what use is made of these compilations. That they are highly useful reference works is obvious; that they provide an easy conspectus of bibliographic activity throughout the world is equally obvious. (They even provide a valuable review of bibliographic activity and publications in one's own country.) The extent to which and the manner whereby they can also be made the basis for promotional work in filling gaps, extending coverage and providing services where none now exist remains to be seen.

VERNER W. CLAPP

Marshall, Mary Louise. Medical New Orleans one hundred years ago. *Bull. Tulane Med. Fac.*, 15: 1–4, Nov. '55.

The Louisiana State Board of Health celebrated its one hundredth anniversary in 1955, and in honor of that event three of the articles in the November 1955 issue of the *Bulletin of the Tulane Medical Faculty* are devoted to Louisiana medical history. The first, by Miss Marshall, gives the background of medical education, medical practice, and public health in New Orleans. In 1855 there were 150,000 people living in the city, of which 26,000 were negroes (10,000 free and 16,000 slaves). Streets were not paved and gas lighting was a rarity; the water supply was furnished from individual open cisterns; while open gutters provided all the sanitary drainage available. Yellow fever epidemics of devastating proportions were common occurrences, and led to the establishment of the State Board of Health.

Physicians in New Orleans in the 1850's belonged to two separate traditions: the Creole group, educated in French and Spanish schools, and the English-speaking group, educated in the United States. Two schools of medicine flourished, the Medical College of Louisiana and the New Orleans School of Medicine; both used the Charity Hospital, which had the enormous rate of admission of over 13,000 per year. The diploma of the first school automatically licensed the holder to practice medicine in the state; all other physicians were required to be judged by La Comité Médicale de la Nouvelle Orleans before receiving licenses.

Several medical societies flourished in the city and no less than eight medical and dental journals were published before 1860, one of which (*New Orleans Medical and Surgical Journal*) is still being published under a different name. In these the keen clinical observations of the local physicians were made available to all.

Marshall, Mary Louise and Shoughro, Elizabeth. The changing picture of medical education, especially as exemplified at Tulane. *Bull. Tulane Med. Fac.*, 15: 5–14, Nov. 1955.

After a history of medical education throughout the United States up to the

early 19th century, a description of the Medical College of Louisiana (founded 1834) and the New Orleans School of Medicine (founded 1856) is given. The requirements for graduation from Louisiana medical schools were exactly the same as the requirements from the best Eastern schools of the time, such as the University of Pennsylvania or Columbia University. This included completion of three years of preceptorship with a practicing physician, plus two terms of ungraded lectures of four months each. Lectures were given in anatomy, physiology, surgery, theory and practice of medicine, chemistry, materia medica, obstetrics and diseases of women and children, while clinical instruction was held at the Charity Hospital. Licensure was in the hands of two medical boards, the Western Board, with headquarters at Opelousas, and the Eastern Board, La Comité Médicale de la Nouvelle Orleans, with headquarters in New Orleans. Graduates of the Medical College of Louisiana were given a license to practice without examination; others were judged by the Boards.

Gradually the school terms were lengthened and graded and laboratory work was added, although the suspension of the schools during the Civil War was a great setback. In 1884 the Medical Department of the University of Louisiana became the Medical Department of Tulane University, a new school founded by bequests in the will of a New Orleans merchant, Paul Tulane, while still keeping some of the features of a state institution. By 1900 the medical school at Tulane was completely following the pattern of preliminary educational requirements, length of course, clinical training, and laboratory study set forth by the American Medical College Association and the American Medical Association, and the number of fulltime instructors was greater than the average in other American medical schools. Since that time Tulane has become a leader in medical education not only in the Southwest, but in the entire United States.

Freedman, Benjamin. Louisiana State Board of Health, Centennial of its establishment. *Bull. Tulane Med. Fac.*, 15: 15–22, Nov. 1955.

According to the author Louisiana was the first state to found a Board of Health, although some other contenders for that honor have been set forth by other writers. Whatever the merits of the case over priority, there is no question but that Louisiana has every right to be proud of its early and continuous work in the field of public health. Dr. Freedman discusses the contributions of the Board of Health in its two aspects, its relations to medical education and its development of public health practice, from the biographical viewpoint. This he characterizes as follows:

> Among the most satisfying features of such historical research has been the re-discovery of the great stature of the medical men of Louisiana a century ago, their farsightedness, their humanitarianism, their contributions to medical education, their participation in local, state, and national public health activities, and their consistent battle for the creation and development of an effective public health service for the State of Louisiana.

ESTELLE BRODMAN, PH.D.

Ackerknecht, Erwin H. *A Short History of Medicine.* New York, The Ronald Press Company, 1955. 258 p. illus. $4.50.

Histories of medicine—long and short, erudite and popular—continue to pour from the presses and it becomes increasingly difficult for new works in this field to justify their existence—at least in the eyes of the discerning reader. Librarians are, or should be, discerning readers, and Dr. Ackerknecht's book should make a special appeal to them not only because it is a freshly written account of medical history but also because it attempts to show the practical meaning of the events described. As the publisher's blurb states (truly for once), the book is much more than a simple retelling of the bare bones of the story. It is the way in which the author continually faces up to the meaning of events which makes this a real history as distinct from a mere chronology and constitutes its special value to medical students and librarians. In the course of their daily work librarians are constantly brought face to face with the great episodes of medical history and they may have a first hand acquaintance with original sources; but medical history tends to become a series of isolated "peaks," each of which is considered more or less in a vacuum and as a bibliographical "reference." Dr. Ackerknecht provides the synoptic view which is so necessary. His text is not overburdened with names and dates, but the real significance of the most important writings and discoveries is emphasized, and the whole book reads as easily as a first-class novel. There is, on the other hand, no attempt to "write down" to the supposed level of the ordinary reader and the work is only elementary in the sense that it displays the clarity of the author who is complete master of his subject. As an introduction to the longer and more specialised works, which are so well set out in Dr. Ackerknecht's "Suggestions for Further Reading," this book could hardly be bettered.

W. J. Bishop

Davidson, Maurice. *The Royal Society of Medicine: The Realization of an Ideal, 1805–1955.* London, Royal Society of Medicine, 1955. 201 p. illus., ports. 1 guinea.

In 1905 when the Royal Medical and Chirurgical Society of London was 100 years old, a history was published by the Aberdeen University Press. The authors of that volume were Sir Norman Moore and Mr. Stephen Paget who were two of England's most literate medical leaders and historians. That volume was accompanied by biographical notes concerning the presidents. Now 50 years have passed and the Royal Society of Medicine has requisitioned the services of Maurice Davidson to record the developments in this half century. The handsome volume published by the Royal Society of medicine itself traces the development of the distinguished organization in a work that is fully documented and authoritative. A whole essay could be written on the opening sentence of this book, "It has been said of old, and with truth, that Nature's price

for exclusiveness is degeneracy; and this aphorism may be applied to Societies of men, no less than to individuals."

Dr. Davidson traces the life and vigor of the Royal Society of Medicine to its hybrid quality and shows how it originated from a number of small streams which fused into a mighty river. The official documents are quoted and the names of those who originated and carried out important activities will be recognized by many American readers who have had the pleasure on various occasions of entertaining our British colleagues in this country. Of special interest are chapters 7 and succeeding chapters which relate to the great building at No. 1 Wimpole Street and its library. In the early days the library, which was formed in 1807, contained 400 books and was open for two hours every day. Now the library is open from 9:30 in the morning until 9:30 in the evening. It is visited by more than 50,000 persons yearly. A Fellow may borrow eight books at one time and a large staff provides references and bibliographic services. Books are also sent by mail to Fellows living more than one mile from the society's house. Catalogues have been published from time to time. By 1896 the library had grown to 70,000 items. The record includes biographical notices of important members of the staff, both professional and lay. Notable additions have been made by various donations and bequests, the most significant being the gift from the Wellcome Foundation of a sum sufficient to build a new story on the building and greatly expand the library services. Especially interesting also are photographic services, including all modern methods of photostating, microfilming, and photographing which are available for Fellows of the association. The final chapters of the book are again biographical, listing the distinguished presidents of the Royal Society during the last fifty years.

MORRIS FISHBEIN, M.D.

Oklahoma University Library. *A Check-list of the E. DeGolyer Collection in the History of Science and Technology as of August 1, 1954;* comp. by Arthur McNally and Duane H. D. Roller. Norman, Univ. of Oklahoma Press, 1954. vi, 127 p. $3.00

The DeGolyer Collection in the history of science and technology was established at the University of Oklahoma with an initial gift of six hundred rare volumes in 1949. The present check-list containing some thirty-five hundred entries and representing about five thousand volumes is a record of the growth of that youthful collection and of a noteworthy achievement in book collecting. The list is not a collection of rarities, although it contains a tantalizing quota of some of the cherished classics in the history of science, but a working collection created to support a program of teaching and research in the history of science.

The purpose of the compilers is to mark a milestone in their collecting ac-

tivities rather than to present a bibliography in the history of science. Indeed the list has many shortcomings which severely limit its usefulness both as a bibliography and as a reference tool for the student of the history of science. The entries are presented with the barest amount of bibliographic detail. It is unfortunate that the compilers did not choose to arrange their list in another fashion than alphabetically by author, since either a classified or a chronological arrangement would have greatly enhanced its value. The many lacunae in the list, both in basic texts and in secondary works of scholarship, as well as in important bibliographic tools and early scientific periodicals, are doubtlessly to be accounted for by the fact that this special collection is part of a large university collection. Although the medical sciences are represented in the list the major emphasis seems to be on the physical sciences. It is most useful for its representation of some of the most recent work of scholarship in the history of science and technology. It is a well deserved mark of recognition of a significant achievement in the art of building a book collection, and of the praiseworthy generosity of a library donor for whom librarians can only ask reverently that their years should be long and that their number should multiply.

DAVID A. KRONICK

BOOKS RECEIVED FOR REVIEW

A Selection Will be Made for Further Notice

ABRAHAM, KARL. *Clinical Papers and Essays on Psychoanalysis.* Ed. by Hilda Abraham. [1st ed.] New York, Basic Books [1955] 336 p. $6.00 (His Basic classics in psychiatry, v. 2)

ASSOCIATION OF THE BAR OF THE CITY OF NEW YORK. *Impartial Medical Testimony: Report by a Special Committee on the Medical Expert Testimony Project.* New York, Macmillan, 1956. ix, 188 p. illus. $3.95.

BURLAGE, HENRY M. and others. *Laboratory Manual for Introduction to Pharmacy, a Revision of Laboratory Manual for Principles and Processes of Pharmacy.* 3d ed. New York, Blakiston Division, McGraw-Hill, 1956. xv, 271 p. illus. $4.50.

FERGUSON, N. M. *A Textbook of Pharmcognosy.* New York, Macmillan, 1956. vii, 374 p. illus. $7.00.

INTERNATIONAL POLIOMYELITIS Congress, 3D, ROME, 1954. *Poliomyelitis, Papers and Discussions.* Philadelphia, Lippincott [c1955] xxiv, 567 p. illus. $7.50.

MYERS, GORDON B. *The Interpretation of the Unipolar Electrocardiogram.* St. Louis, Mosby, 1956. 164 p. illus. $4.75.

NEW YORK ACADEMY OF MEDICINE. *Ministry and Medicine in Human Relations,* ed. by Iago Goldston. New York International Universities Press [1955] xviii, 173 p. $3.50.

PADDOCK, MINNIE I. *Basic Medical Terms and Techniques Simplified*. Chicago, American Technical Society, 1955. vi, 148 p. illus.

Pi SUÑER, AUGUST. *Classics of Biology*. Authorized English translation by Charles M. Stern. New York, Philosophical Library [1955] x, 337 p. $7.50.

REA, FREDERICK B. *Alcoholism, its Psychology and Cure*. New York, Philosophical Library [1956] 143 p.

REES, TUDOR AND USILL, HARLEY V., eds. *They Stand Apart, a Critical Survey of the Problems of Homosexuality*. New York, Macmillan [1955] xii, 220 p. $3.75.

SCHILDER, PAUL. *The Nature of Hypnosis*. Translated by Gerda Corwin. New York, International Universities Press [1956] 204 p. $4.00.

SLAVSON, S. R., ed. *Fields of Group Psychotherapy*. New York, International Universities Press [c1956] xiii, 338 p. $6.00.

WAGSTAFFE, REGINALD AND FIDLER, J. HAVELOCK, ed. and comp. *The Preservation of Natural History Specimens. Vol. 1, Invertebrates*. [New York] Philosophical Library [1955] xiii, 205 p. illus. $10.00.

WORLD FEDERATION FOR MENTAL HEALTH. *Mental Health and Infant Development; Proceedings, International Seminar, Chichester, England*, ed. by Kenneth Soddy. [1st ed.] New York, Basic Books [c1956] 2v. illus. $9.00 per set; $4.50 each volume.

Obituary

Professor George Sarton Dies

On March 22 Professor George Sarton, historian of medicine and of science, died in his home in Boston. He became ill while driving to Logan Airport en route to a lecture at Montreal. He returned home and died a short time later.

Professor Sarton was a pioneer in the study of the history of science. He had just completed the second of a projected nine-volume work on the history of sciences. He retired from active teaching in 1951.

A native of Ghent, he came to the United States in 1915 to lecture at George Washington University and the next year moved to Harvard.